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DEPARTMENT OF RECREATION AND CONSERVATION

HANDBOOK No. 19

The HEATHER FAMILY (*Ericaceae*) of British Columbia

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By Adam F. Szczawinski

Illustrations by
Betty C. Newton and Ann Hassen

VICTORIA, B.C. JANUARY, 1962

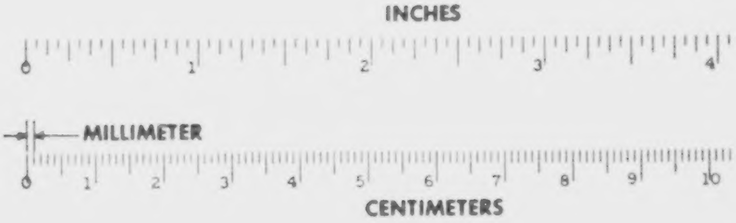
METRIC UNITS

10 millimetres (mm.) = 1 centimetre (cm.)
10 centimetres = 1 decimetre (dm.)
10 decimetres = 1 metre (m.)
1,000 metres = 1 kilometre (km.)

METRIC AND ENGLISH CONVERSION TABLE

Linear Measure

1 kilometre = 0.6214 mile
1 metre = 39.37 inches
1 metre = 3.2808 feet
1 metre = 1.0936 yards
1 centimetre = 0.3937 inch
1 millimetre = 0.03937 inch
1 mile = 1.609 kilometres
1 yard = 0.9144 metre
1 foot = 0.3048 metre
1 foot = 304.8 millimetres
1 inch = 2.54 centimetres
1 inch = 25.4 millimetres


INCHES
0
1
2
3
4
MILLIMETER
0
1
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in right of the Province of British Columbia.
1962

many individuals and the use of various herbaria, the completion of this handbook would have been impossible.

Mention should be made and thanks extended to Miss B. C. Newton, of the staff of the Provincial Museum, and also to Miss A. Hassen for their fine work in preparing the drawings.

Sincere thanks are extended to J. A. Calder, Science Service, Ottawa, and Dr. A. E. Porsild, National Museum, for supplying many data concerning distribution; to Drs. T. M. C. Taylor and V. Krajina, University of British Columbia, for courtesies and help; to Miss M. C. Melburn, J. E. Underhill, and the late W. A. Newcombe, of Victoria, B.C., and to Mrs. D. H. Calverley, of Dawson Creek, for the privilege of using their private collections.

The author is also indebted to Dr. G. C. Carl for advice, generous support, and interest shown in checking the manuscript.

He also appreciates and acknowledges with thanks Mrs. S. Newnham's preparation of the distribution maps and typing of the manuscript.

Finally, his appreciation is extended to his wife for her unstinted assistance in the preparation of this handbook.

A. F. S.

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The Heathers of British Columbia

INTRODUCTION

About sixty members of the family *Ericaceæ* occur in British Columbia, but none of them is a true heather or true heath. Some are heath-like, and these are referred to as native heather or heath.

The term "true heather" applies to the European plant *Calluna vulgaris* (L.) Hull, known here as Scotch heather, and is widely cultivated in many of our gardens. The name *Calluna* came from the Greek *Kallunem,* (to sweep), since brooms were made from its twigs. Many of us will recall reading that, in the past, heather besoms or brooms were made of the heather twigs, and a favourite expression still used colloquially in Scotland in reference to someone's untidy hair likens it to a "heather besom," a very amusing and descriptive expression. Heather has become widely used as a symbol in design in Scottish textiles and industry, and even the soft tones of the heather are used in dyeing the famous Scottish tweeds, so that more people associate it with Scotland than the thistle, which is the national emblem.

This low, much-branched, evergreen shrub, with minute, linear, opposite, crowded, and imbricate leaves, has flowers in one-sided, terminal spike-like racemes. *Calluna* is a monotypic genus of Eurasia and often dominates large areas of well-drained acid soil forming heaths or moors. As these areas are so prevalent in many parts of Scotland, the common name for this plant, Scotch heather, is generally accepted in the North American Continent.

Calluna vulgaris is widely spread over Continental Europe from Iceland and Finland to Spain, North Italy, Greece, and the Urals (Russia), and further on in northwest Morocco and the Azores. In eastern North America it is rare and most likely introduced, as it is here. In many parts of British Columbia this plant is cultivated for its matchless beauty, charm, and sentiment, in the belief that the white form in particular brings good luck, this delightful myth being passed on from generation to generation among Scottish people throughout the world. As a result of this intensive cultivation, *C. vulgaris* escaped and is now spreading in a few localities where the habitat is suitable, becoming quite well established in some places, such as the peat bog on Lulu Island near Vancouver and at Ucluelet on the west coast of Vancouver Island; it has even been reported and collected as far north as the Dawson Creek area.

We also have no " true heathers " in our Province as the term " true heath " applies to the genus *Erica*, confined to the region of the Cape of Good Hope, where some 500 species are to be found. You may find that most botanists refer to *Ericaceæ* as the heath family for the reason that the " true heath " (genus *Erica*) is represented by a large number of species. However, the present auther favours the term " heather " for this family as this plant is so well known to everyone. It should be pointed out that the botanical name *Ericaceæ* is derived from the genus *Erica*.

In British Columbia where the winters are not too severe and where the soil conditions in many cases are sufficiently acid (for most members of the family are acid-loving), many genera of the Heather Family make valuable contributions to our gardens, and because of their spectacular beauty they are in great demand and are the basis of a many-million-dollar industry. Notable among these are species and hybrids of *Rhododendron, Azalea, Kalmia, Erica,* and *Calluna.* Whoever travels around our Province will soon learn how conspicuous this family is in our northland. There he will find an abundance of Labrador tea, laurel, blueberries, wintergreen, and many others. On the coast, in our woods, we have that interesting white waxy plant Indian pipe and a number of saprophytic relatives, plus the robust evergreen salal. On the southern part of Vancouver Island and on adjacent areas of the mainland there is found *Arbutus*, the only member of the family in tree form. It is doubtful that any species of our flora is so striking and decorative as this, the only broad-leaved evergreen tree in Canada.

A few genera of this family, such as *Rhododendron, Azalea, Erica, Calluna,* and others, are of considerable economic importance for their horticultural adaptability, while others, like salal, evergreen huckleberries, and arbutus, are used in the floral industry.

A number of species supply valuable fruit, such as blueberries, huckleberries, and cranberries. One of the wintergreen, *Gaultheria procumbens*, gives its name to the fragrant oil of wintergreen, which occurs in the plant in limited quantities; commercially, however, this oil is most frequently obtained from the twigs of the European black birch (*Betula lenta*), or is made synthetically.

The *Ericaceæ* is not a large family as compared with some, comprising about seventy genera and more than 1,900 species.

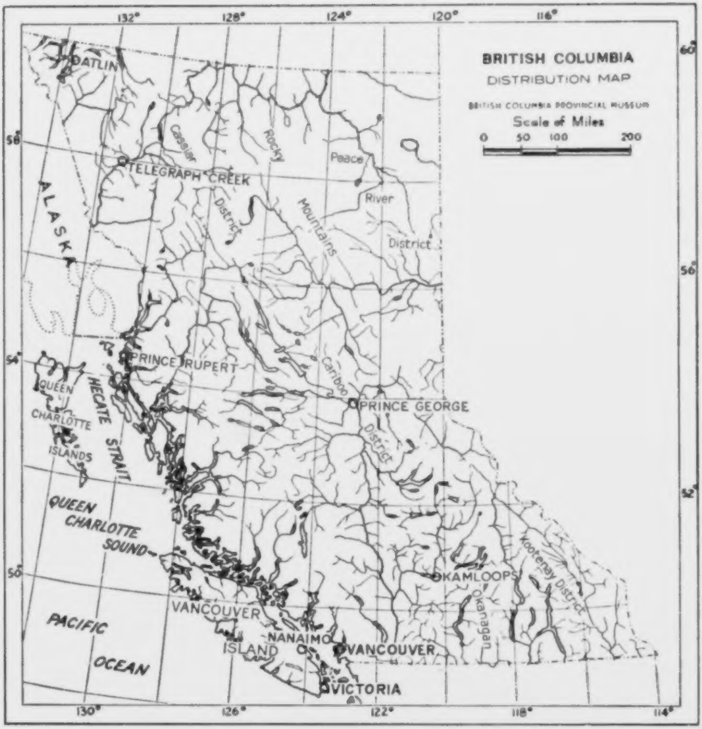
Opinion is divided on the internal classification of the family. As here considered, it includes *Pyrolaceæ*, *Monotropaceæ*, as well as *Vaccinaceæ*. Other students divide this family into two or more taxa, treating *Monotropaceæ*, *Pyrolaceæ*, or even *Vaccinaceæ* as separate families. Still others split the family into a number of subfamilies. No doubt there is evidence to support each view. However, it is beyond the scope of this handbook to discuss pro and contra, and until more evidence is produced, one is not in error in treating this group as one family, *Ericaceæ*.

In this handbook the arrangement of genera does not follow the phylo-genetic system of classification, in which primitive genera are followed by more advanced, but for convenience the order is alphabetical. The species within each genus also follow an alphabetical arrangement.

THE FLORAL PARTS OF HEATHERS

The flower of the heathers is either solitary and located in the axils of the leaves, or arranged within an axillary or terminal inflorescence in the form of a raceme, cluster, or panicle. In the text you will find a formal description of the flower for each species. To help to explain, the following description with illustrations may serve as an example.

In all cases the flower is perfect (bisexual) and regular or nearly so, as in the case of *Rhododendron* (*see* Fig. 1, A*b*). The majority of species have the flower parts free from the ovary and attached near the base (*see* Fig. 2, C*c*). The ovary's position is then superior to the floral parts. In the genus *Vaccinium* and in some species of *Gaultheria* the flower parts are attached to the upper part of the ovary, and thus the ovary is inferior in position.


BRITISH COLUMBIA
DISTRIBUTION MAP
BRITISH COLUMBIA PROVINCIAL MUSEUM
Scale of Miles
0 50 100 200
132°
128°
124°
120°
116°
60°
58°
56°
54°
52°
50°
130°
126°
122°
118°
114°
ATLIN
Cassiar
District
Rocky
Mountains
Peace
River
District
TELEGRAPH CREEK
ALASKA
PRINCE RUPERT
Cariboo
District
PRINCE GEORGE
QUEEN
CHARLOTTE
ISLANDS
HECATE
STRAIT
QUEEN
CHARLOTTE
SOUND
KAMLOOPS
Kootenay District
Okanagan
VANCOUVER
ISLAND
NANAIMO
VANCOUVER
VICTORIA
PACIFIC
OCEAN

PREFACE

No general treatment of our native plants of the Heather Family *(Ericaceæ)* has appeared since the publication of the *Flora of Southern British Columbia and Vancouver Island,* by J. K. Henry, in 1915, and its supplement, by J. W. Eastham, in 1947. Since then, many collections have added new records of species for British Columbia, and in the interval a number of corrections and some taxonomic changes have been made.

One of the chief purposes of this handbook is to bring together all these available data concerning members of the Heather Family, to serve those who are interested in this fascinating group of plants, and to make a step toward a major project on the Vascular Flora of British Columbia, presented in the form of a popular guidebook.

The amateur student and field-worker in natural science, by using the descriptions and distribution maps provided, should have a ready means of identifying plants belonging to the Heather Family.

This handbook should prove valuable, not only to residents of British Columbia, but also to those of neighbouring States and Provinces as our flora contains many species at the margins of their ranges. An attempt it made to include all species, whether rare and local or common and widespread.

This work is naturally, in a large part, based upon existing literature, as the descriptions of all our species are available in a number of excellent works. These were referred to frequently, particularly the following: Hitchcock, Cronquist, Ownbey, Thompson, *Vascular Plants of the Pacific Northwest,* Vol. 4, 1959; Abrams, *Illustrated Flora of the Pacific States,* Vol. 3, 1951; Gleason, *The New Britton and Brown Illustrated Flora,* Vol. 3, 1952; Henry's *Flora of Southern British Columbia and Vancouver Island,* 1915.

To all of these and to numerous other publications, the author is indebted for much of the data used.

The author also wishes to express his indebtedness and thanks to all those persons who have in any way helped him during the course of this work. Without the assistance and co-operation of

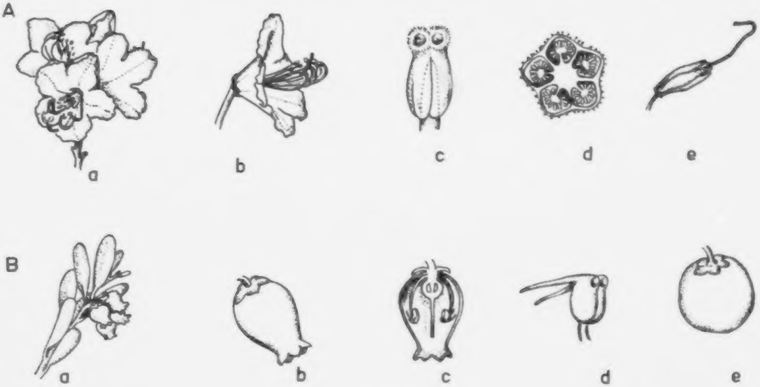


Fig. 1.

A. *Rhododendron macrophyllum:* A*a*, inflorescence; A*b*, single flower; A*c*, anther; A*d*, ovary (cross-section); A*e*, fruit (capsule).

B. *Arctostaphylos uva-ursi:* B*a*, flowering branch; B*b*, single flower; B*c*, longitudinal section of flower, showing reproductive organs; B*d*, anther; B*e*, fruit (berry).

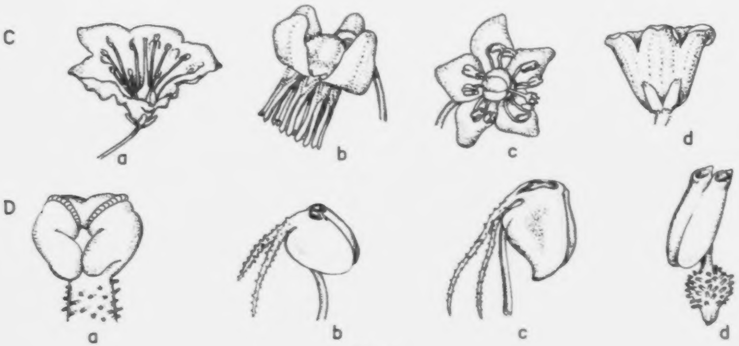


Fig. 2.

C. *Single flower:* C*a*, *Kalmia*, showing pouches for anthers; C*b*, *Oxycoccus*, showing deeply parted corolla; C*c*, *Moneses*, showing widely spreading corolla; C*d*, *Cassiope*, showing campanulate type of corolla.

D. *Single stamen:* D*a*, *Monotropa*, showing unawned anther, dehiscent by two curving slits; D*b*, *Arctostaphylos;* D*c*, *Cassiope*, showing anthers, awned from the back; D*d*, *Chimaphila*, showing awnless anther, opening by terminal pores on short tubes.

The perianth, which consists of calyx and corolla, is biseriate and 4- or 5-merous, meaning that the parts of each series (sepals and petals) are in fours or fives in each flower (*see* Fig. 2, C). The calyx is typically 4- or 5-lobed or sometimes of distinct sepals, usually persistent. The corolla is of 4 or 5 petals, usually united, funnel form, campanulate or urceolate or sometimes distinct (*see* Figs. 1 and 2). The number of stamens is as many, or twice as many, as the lobes of the corolla with anthers composed of 2 sacs, commonly opened by terminal pores and frequently having structures known as appendages, horns, or awns (*see* Fig. 2, D). The female reproductive organ or pistil always is composed of 4 or 5 carpels (*see* Fig. 1, A*d*) with a single style and simple stigma. As a rule the fruit is a capsule or a berry (*see* Fig. 1, A*e* and B*e*).

NOMENCLATURE

In speaking of plants, the botanist finds it necessary to use technical names rather than the common names of spoken language, and the interested layman soon finds that it is best for him also to become familiar with botanical names, forbidding as they may seem at first sight. For instance, the name wintergreen has unfortunately been used for several plants superficially more or less alike but not closely related. One can give many examples of the confusion inherent in colloquial names, without even drawing attention to the fact that all such names are useless as soon as we pass into a country in which English is not spoken.

Botanical names are always in Latin form, whether they are actually derived from Latin or not. These names are recognized throughout the world, and under the International Code of Botanical Nomenclature the same name can never be correctly applied to more than one kind of plant.

Botanical names are really quite simple; they are based on the classification of plants. The unit in botanical classification is the species; e.g., all the Indian pipes represent one species, all the salals another. Related species having certain main characters in common are brought together to form a genus; all the labrador teas are in one genus, *Ledum;* all the blueberries belong to the genus *Vaccinium*, etc. Each genus (the plural is genera) has a name formed of a single word, usually a Latin name. The name of the species is made up of two words, the first being the name of the genus to which it belongs, the second a qualifying word, usually a Latin adjective. *Rhododendron macrophyllum*, *Pyrola secunda*, *Cassiope tetragona* are the names of species. Within the species the botanist often distinguishes groups set off by less evident differences (slight differences in form or colour or pubescence, for instance); such groups may be called "subspecies," "varieties," or "form," and are named by adding further qualifying words to the name of the species; for example, *Pyrola secunda* var. *obtusata* and *Kalmia polifolia* var. *microphylla* are the names of varieties.

Going in the other direction, we arrange genera in larger groups called "families." Each family is named by a single word usually ending in "*aceæ*." *Ericaceæ* is the name of the family to which all heather genera belong. The families again compose the larger groups of the plant kingdom.

A valid botanical name has at least three parts—a generic name, a specific name, and the name of a person or persons (usually abbreviated) who first described the plant. The varietal name, if necessary, is placed after the authority for the specific name. It is also followed by its authority and is usually preceded by the abbreviations "var." for variety, "ssp." for subspecies, etc. There are reasons why it is important to record the name of the author who first gave the name to a species. If a later author transfers a species from one genus to another, the name of the first one is placed in parentheses followed by the name of the second author; e.g., *Phyllodoce glanduliflora* (Hook.) Coville. This scientific name for the yellow mountain heather tells us that it was first named by Hooker but as belonging to another genus (*Menziesia* in this case) and was later transferred to the genus *Phyllodoce* by Coville.

IDENTIFICATION OF HEATHERS (USE OF KEYS)

In this handbook you will find a key to the genera, and further keys to the species within those genera which have more than one species. The construction of keys is artificial, and there is no relationship among the genera or species.

To enable you to identify the plant found, you should first read carefully the description of the family and make sure that the plant in question belongs to the heather family. Next you should follow the key to the genera, and when you decide on the genus check the generic description and the generic key to determine the species.

Every key is merely an easy means of following through a set of contrasting characters until you come to a single group which applies to the plant in question, abandoning its unsuited alternates. This continued progression by the elimination of non-pertinent descriptions will eventually bring you to a genus or species giving the correct botanical name to the plant. After finding the botanical name of the plant in the key, you should check the identification by reading over the description in the text and comparing the specimen with the illustration. As the characters used in the key very often refer to floral parts of the flower, which in most cases are too small to be observed with the naked eye, you should use a magnifying glass, especially for examining the anthers, its appendages, etc. Usage of botanical keys requires a certain amount of practice, and use of the glossary is recommended to understand fully the botanical terms used in the text.

DISTRIBUTION OF HEATHERS IN BRITISH COLUMBIA

The distribution of each species in shown on its own map, based entirely on records obtained from the following herbaria: Provincial Museum, Victoria; University of British Columbia, Vancouver; Plant Research Institute and National Museum, Ottawa; and the private collections of Miss M. C. Melburn, J. E. Underhill, and the late W. A. Newcombe, all of Victoria, and Mrs. D. H. Calverley, of Dawson Creek.

Due to the lack of records from many areas of the Province, the distribution maps cannot give a complete picture, but only a very general idea of the climatic regions in which a species may occur in favourable habitats.

The regions as shown in the distribution map (Fig. 3) have been based upon those on the climatic region map in the British Columbia Atlas of Resources, 1956. Therefore, British Columbia has been divided into three major climatic regions—namely, the Coast, Interior, and Northeast. This threefold division reflects the basic land-form pattern of the Province and emphasizes the importance of topographic features such as the Coast Mountains and the Rocky Mountains as climatic divides.

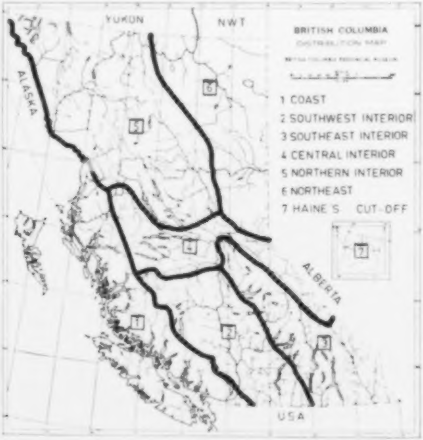

YUKON
NWT
ALASKA
ALBERTA
USA
BRITISH COLUMBIA
DISTRIBUTION MAP
1 COAST
2 SOUTHWEST INTERIOR
3 SOUTHEAST INTERIOR
4 CENTRAL INTERIOR
5 NORTHERN INTERIOR
6 NORTHEAST
7 HAINE'S CUT-OFF
1
2
3
4
5
6
7

Fig 3. Regions of British Columbia for which heather localities are discussed in the text.

Haines Cut-off is not included in the Coast but is discussed as a separate region.

The Interior is broken down into four sub-regions reflecting topographic and latitudinal influences—namely, Southwest Interior, Southeast Interior, Central Interior, and Northern Interior.

The Northeast region is on similar latitudes to the Northern Interior but has more extreme conditions as it is not influenced by a maritime climate.

. Many of our native heathers are not only the important elements of beauty which form the spectacular mosaics that carpet the slopes, ridges, and alpine plateaux, but are also members of the natural biotic communities which continuously are exposed to destruction by mankind. These man-induced changes of natural habitat create confusion and often make it impossible to read and fully understand the original biotic communities.

Such changes are rapid and noticeable, and they may occur even before studies can be completed. Only preservation and proper maintenance of our natural areas can take care of our native vegetation and spare it for future generations for their further studies and enjoyment.

Realizing fully that many of the biotic communities, with all their pleasant diversities and beauty, are vanishing before our eyes, one will understand how important it is not to contribute to the ultimate destruction of native species, destruction which causes the vanishing of the natural acres of our wilderness.

James B. Ross, the president of the Nature Conservancy, Washington, D.C., said: "America to-day is experiencing an almost unbelievable increase in the destructive exploitation of our landscape. This obliteration of natural habitats threatens to continue, to a point where there will not remain even a single example of many types of biotic communities. The situation is critical. If we are to save something of our heritage, we must act without delay."

More and more people realize to-day that the native vegetation and other forms of wildlife must be preserved, and that there is a need for putting aside untouched areas where scientists will be able to find fundamental raw material for their studies. Protection of these areas is one of the country's primary needs.

The wild heathers of British Columbia include many delightful and interesting plants which are well worth knowing and searching for, and worth the effort of self-control involved in refusing to pick them. There is no need for thoughtless destruction of any wild flowers, but how often we realize too late, if we ever think at all, that in the act of picking these flowers we have contributed to the ultimate destruction of the species. Since coloured photography has become so popular, it is easy to capture beauty of flowers permanently, without picking them and removing them from their habitats.

KEY TO THE GENERA

A. Plant without green leaves (saprophytic herbs).

B. Style long-exserted from flowers and curved; flowering stem with 1–3 sessile bracts .... *Pyrola aphylla*

BB. Style short, not curved, included in flowers, flowering stem bracteate to the inflorescence.

C. Corolla wanting; flowers spicate; stem red and white striped .... *Allotropa*

CC. Corolla present; flowers not spicate; stem not striped.

D. Corolla urn-shaped; anthers with awns at the base .... *Pterospora*

DD. Corolla not urn-shaped; anthers without awns.

E. Flowers single; plant waxy-white when fresh, drying to black .... *Monotropa*

EE. Flowers more than one in terminal raceme; plant not waxy-white.

Ovary without a central column; plant pinkish when fresh, drying to brown .... *Hemitomes*

Ovary with central column; plant yellowish-brown when fresh, drying to black .... *Hypopitys*

AA. Plants with well-developed green leaves (plants not saprophytic).

B. Plants herbaceous or somewhat woody at the very base only; leaves always evergreen; petals distinct.

C. Flowers solitary or racemose; leaves suborbicular crowded at the base.

Flowers solitary terminal .... *Moneses*

Flowers several, racemose .... *Pyrola*

CC. Flowers corymbose or umbelate; leaves ovate to lanceolate somewhat scattered or whorlet on the stem .... *Chimaphila*

BB. Plants woody; trees, shrubs, undershrubs, or vines; leaves usually evergreen; petals united (except in *Ledum* and *Cladothamnus*).

C. Ovary truly inferior; calyx-tube adnate to whole length of the ovary which in fruit becomes a fleshy berry crowned with the calyx teeth.

Corolla divided nearly to the base; lobes linear reflexed; stems trailing vines .... *Oxycoccus*

Corolla open campanulate to cylindric, urceolate or globose with small lobes; shrubs with mostly erect stems .... *Vaccinium*

CC. Ovary superior; calyx free from the ovary (in *Gaultheria* ovary appears falsely inferior as the capsule is embedded in fleshy calyx becoming in fruit falsely berry-like structures).

D. Trees with smooth reddish-brown exfoliating bark .... *Arbutus*

DD. Woody shrubs or undershrubs.

E. Corolla with petals distinct to the base (polypetalous).

Leaves evergreen, often glandular; flowers in terminal clusters (corymbs), white; petals less than 8 mm. long .... *Ledum*

Leaves deciduous, not glandular; flowers axillary, copper-coloured; petals more than 8 mm. long .... *Cladothamnus*

EE. Corolla with united petals (gamopetalous).

F. Heather-like shrubs with numerous needle-like or scale-like evergreen leaves.

Leaves scale-like, closely imbricate, usually 4-ranked; flowers nodding; anthers awned .... *Cassiope*

Leaves needle-like, spreading, leaving raised peg-like scar; flowers not nodding; anthers not awned .... *Phyllodoce*

FF. Not heather-like shrubs; leaves not needle-like or scale-like.

G. Leaves either deciduous or else large and leathery and over 6 cm. long; relatively tall erect shrubs (1–1.5 m. tall).

Corolla urn-shaped; 4-merous, less than 1 cm. long .... *Menziesia*

Corolla not urn-shaped; 5-merous, over 1 cm. long .... *Rhododendron*

GG. Leaves evergreen, shrub or undershrubs.

H. Corolla rotate (saucer-like) with 10 pouches in which the anthers fit in the bud; leaves strongly revolute .... *Kalmia*

HH. Corolla urceolate to open campanulate without pouches.

I. Anthers awnless.

J. Anther sacs tapering upward into tubular beaks; corolla oblong-cylindric .... *Chamædaphne*

JJ. Anthers otherwise; corolla not oblong-cylindric.
Leaves ovate, serrulate; calyx becoming fleshy in fruit .... *Gaultheria*
Leaves oblong to elliptic, revolute; calyx not becoming fleshy in fruit .... *Loiseleuria*
II. Anthers awned.
J. Leaves revolute, narrowly oblong, glaucous beneath ... *Andromeda*
JJ. Leaves not revolute, ovate to obovate, not glaucous beneath.
Flowers in axillary or terminal racemes; fruit berry-like, though actually a capsule embedded in fleshy calyx ..... *Gaultheria*
Flowers in terminal clusters (panicles); fruit a berry-like, drupe, not enclosed in the calyx .... *Arctostaphylos*

ALLOTROPA T. & G. (CANDYSTICK)

The name of this genus comes from the Greek *allos* (other) and *tropos* (way or direction), referring to the inflorescence which does not droop as in *Monotropa.* Saprophytic herbs without chlorophyll. Common name candystick or sugarstick used in reference to the bright red-and-white striped stem. Leaves elongated, scale-like, numerous and often crowded toward the base of the stem. Flowers 5-merous in terminal, elongated spike-like racemes. Sepals distinct, broad. Petals wanting. Stamens 10, with slender filaments, and unawned anthers. Ovary superior. Fruit a depressed capsule. A monotypic genus of the Pacific Coast of North America.

***Allotropa virgata* T. & G. ex Gray** **Candystick**

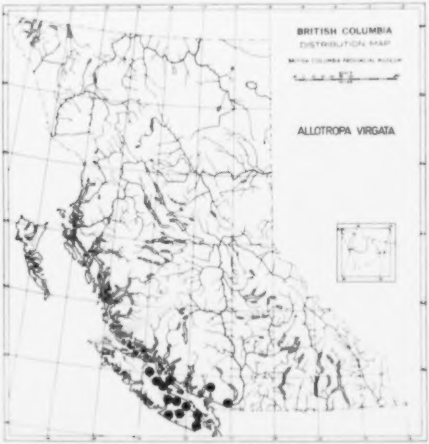
OTHER COMMON NAMES.—Sugarstick, barber's pole, devil's wand.

DESCRIPTION.—*Plant:* Saprophytic herb, up to 50 cm. tall, erect, simple, rather stout, often thickened at the base; stem with red and white longitudinal stripes. *Leaves:* Linear-lanceolate, scale-like, from 20 to 35 mm. long. *Flowers:* Spike-like raceme, elongated, densely flowered, about half of the length of the stem; bracts similar to the upper leaves, but narrower and shorter; pedicels very short and stout; sepals white or reddish to brownish, about 5 mm. long; petals none; stamens 10, exceeding the sepals, dark purplish with unawned anthers opening by a chink to the middle; ovary dark red, superior, 5-celled. *Fruit:* Depressed-globose capsule up to 5 mm. broad.

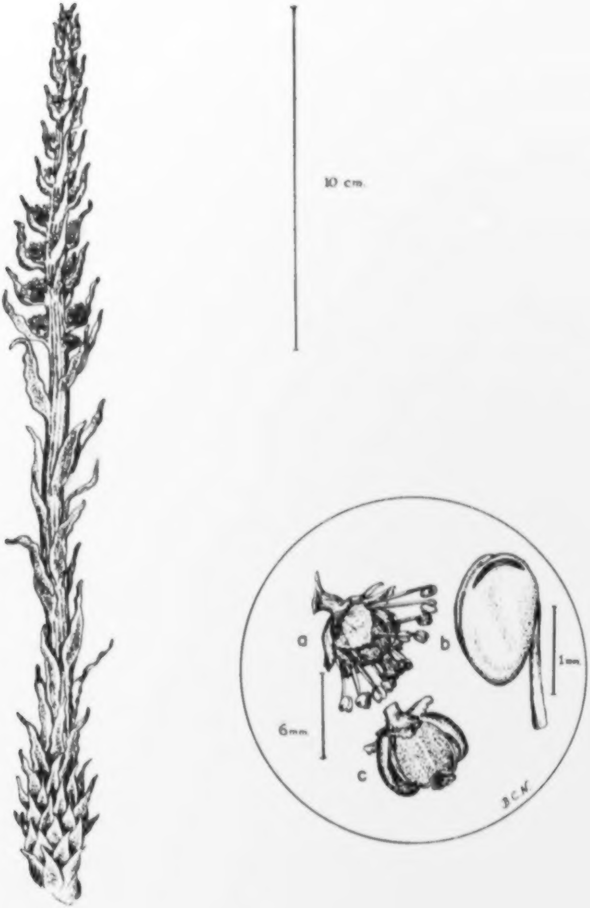
HABITAT.—Humus in coniferous forests.

SEASON.—End of May to August.

RANGE.—British Columbia to Northern California.



DISTRIBUTION IN BRITISH COLUMBIA: Apparently confined to the southern and southeastern portion of Vancouver Island and erratically on the Coast near Vancouver with known localities from Garibaldi Park and Chilliwack Mountain. Never occurs in abundance but may be found growing on dry humus in open coniferous forest around Nanaimo, Parksville, and a few other places on Vancouver Island.


10 cm
a
b
1mm
6mm
c
BCN

Candystick (*Allotropa virgata* T. & G. ex Gray)—*a*, single flower; *b*, anther; *c*, fruit.

COMMENTS.—One of the most showy of the saprophytes found in our Province. Being saprophytic it has no green leaves, but its brilliant red and white colouring makes it very noticeable. When the scaly leaves are removed, it resembles nothing so much as a brightly striped stick of candy. The flowers have no petals, and the sepals are brightly coloured like the stem. This plant has a very limited range, and it is typically Coastal.

ANDROMEDA L. (ANDROMEDA)

This genus was named by Linnaeus after Andromeda, daughter of Cepheus and Cassiope of Greek mythology. Evergreen low boreal shrub arising from creeping or horizontal root-stock with glabrous, narrow, coriaceous, alternate, entire, revolute leaves, usually glaucous beneath. Flowers 5-merous, nodding in small terminal umbels; calyx small, 5-lobed, deeply cleft; corolla pink, gamopetalous, globose-urceolate with 5 short recurved lobes. Stamens 10; anthers with 2 slender ascending awns, opening by apical pores. Ovary superior. Fruit 5-valved, subglobose capsule. This genus is represented by two species of the Boreal and Arctic zones of the Northern Hemisphere.

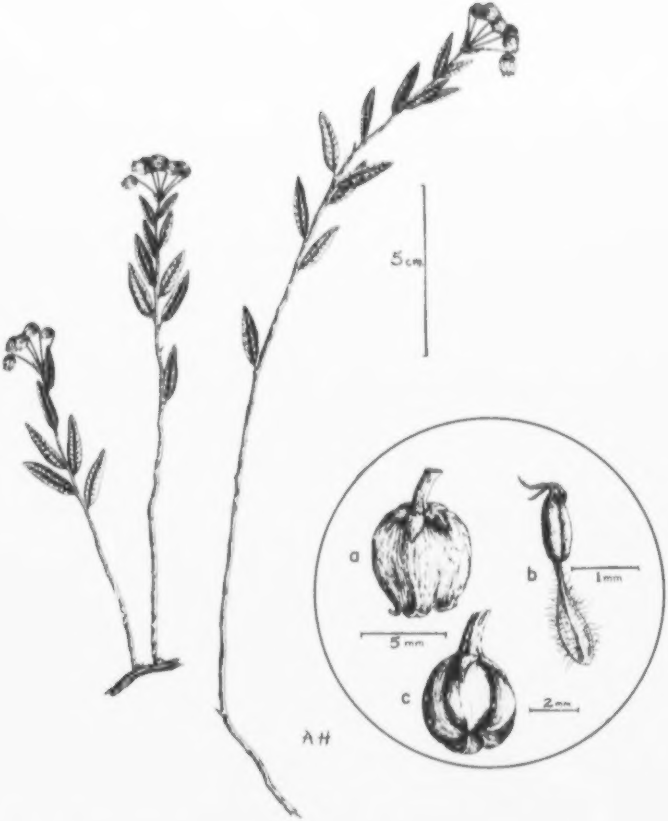
***Andromeda polifolia* L.** **Bog Rosemary**

OTHER COMMON NAMES.—Wild rosemary, moorwort.

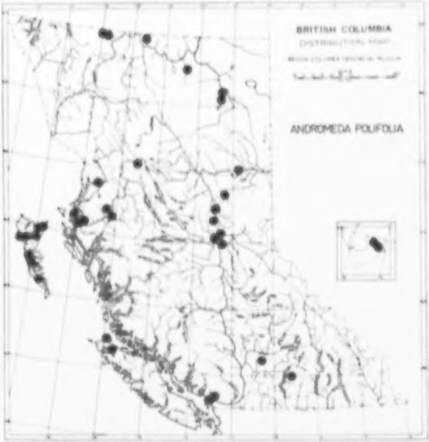
DESCRIPTION.—*Plant:* Evergreen, little-branched, low spreading shrub, up to 50 cm. high, arising from creeping or horizontal root-stock. *Leaves:* Persistent, alternate, coriaceous, glabrous, linear to narrowly elliptic, with entire, revolute margins and white-glaucous lower surface, up to 4 cm. long. *Flowers:* In small terminal umbels, 5-merous, nodding on pedicels up to 12 mm. long; calyx reddish, small, 5-lobed; lobes about 1 mm. long; corolla pink, gamopetalous, globose-urceolate with 5 short recurved lobes, up to 10 mm. long, dilated below; stamens 10, with flattened filaments and 2-locular anthers with slender ascending awns, opening by apical pores. *Fruit:* Subglobose, glabrous, 5-valved capsule up to 8 mm. broad.

HABITAT.—Sphagnum peat bogs and acid swamps.

SEASON.—End of May to August.


5 cm
a
b
1 mm
5 mm
c
2 mm
AH

Bog rosemary (*Andromeda polifolia* L.)—*a*, single flower; *b*, stamen showing anther with hairy filament; *c*, fruit.



RANGE.—Alaska, British Columbia, across Canada to Labrador and Newfoundland; south to Washington and northern Idaho. Eurasia.

DISTRIBUTION IN BRITISH COLUMBIA.—Found in suitable habitat throughout the Province and particularly abundant in the Queen Charlotte Islands, in the area of Prince Rupert on the coast and around Prince George and along the Alaska Highway in the Interior. Seems to be missing only in the Southeast Interior of the Province. The records are too scattered to give a clear pattern of its distribution.

COMMENTS.—Bog rosemary closely resembles swamp laurel in form and habitat. The dull-green strongly revolute leaves, glaucous beneath, are the most obvious separating features. The pink flowers in small terminal umbels make this acidophilous peat-bog shrub very attractive, and it is cultivated successfully in some gardens where the acid soil condition can be duplicated. The leaves and twigs are used in some parts of Russia for tanning.

In eastern Canada and northeastern United States, *Andromeda polifolia* is replaced by subsp. *glaucophylla* (Link.) Hulten (*Andro-*

meda glaucophylla Link.), which differs from the species by having larger leaves, tomentose beneath. This variety is highly regarded as an ornamental with several good strains.

ARBUTUS L. (MADRONA)

The generic name comes from the Latin and is the ancient classical name of the strawberry tree *Arbutus unedo* L., cultivated for centuries and native to southwestern Ireland and southern Europe, conspicuous in late fall with its bright-red fruits.

Evergreen trees or shrubs with fissured or smooth and exfoliating barks, usually reddish in colour. Leaves petioled, alternate, shiny, leathery, and entire or serrate. Flowers perfect in terminal compound racemes. Calyx deeply 5-lobed, persistent, and spreading. Corolla urceolate in shape with the tube swollen and much longer than the 5 rounded, spreading or recurved lobes. Stamens 10; the filaments hairy; the anthers with 2 slender curved awns, opening by terminal pores. Ovary 5- rarely 4-celled. Fruit globose many-seeded berry with finely granular or tuberculate surface. A genus of about 18 species of North America and Eurasia.

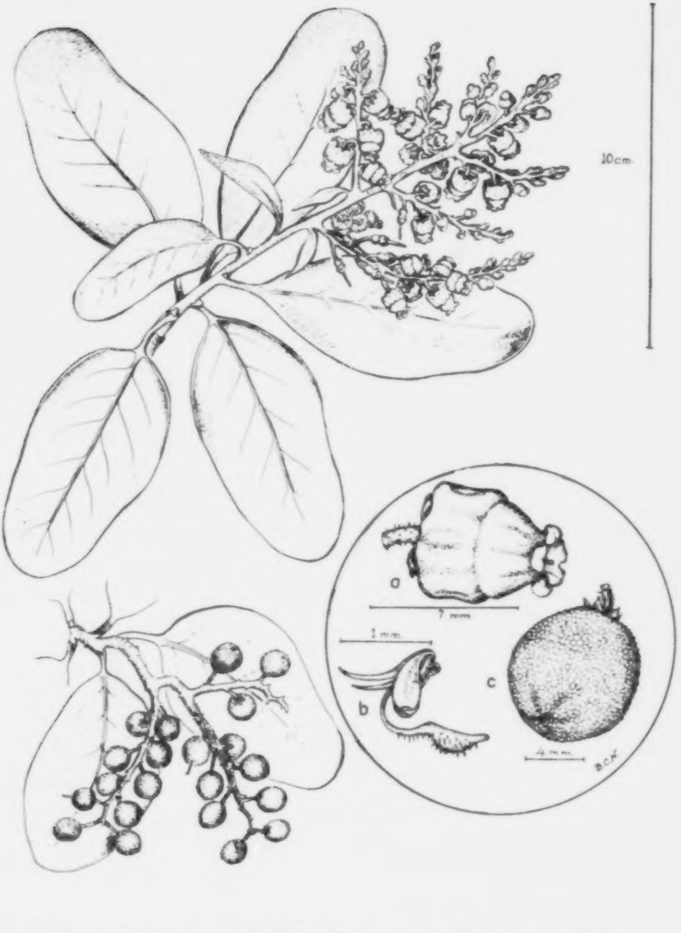
In British Columbia represented by only one species, *A. menziesii,* which is the only broad-leaved evergreen tree native to Canada.

***Arbutus menziesii* Pursh.** **Madrona**

SYNONYM.—*Arbutus procera* Dougl. ex Lindl.

OTHER COMMON NAMES.—Arbutus, madrone, manzanita.

DESCRIPTION.—*Plant:* Trees or shrubs up to 35 m. high with a crooked, often leaning trunk and twisted branches, and crown becoming broad and irregularly rounded with age; bark smooth, the older portion brownish or reddish, exfoliating, leaving a polished surface coloured with varying blends of green and brown. *Leaves:* Persistent, alternate, simple, oval, rounded or blunt-pointed, entire on mature older growth, fine-toothed on young shoots, leathery, shiny, dark green above and silvery-white below, from 5 to 15 cm. long. *Flowers:* Perfect in large, dense, terminal compound racemes; perianth 5-merous; calyx very small, deeply 5-lobed, per-


10cm.
a
7 mm
1 mm.
b
c
4 mm.
BCN

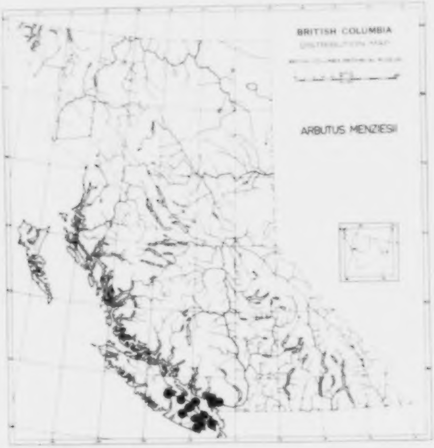
Madrona (*Arbutus menziesii* Pursh.)—*a*, single flower; *b*, stamen; *c*, fruit.

sistent; corolla white or pinkish, urceolate with very short lobes reflexed from the small opening up to 8 mm. long. *Fruit:* Globose to ovoid berry with numerous seeds, bright orange-red at maturity with rough surface, up to 12 mm. broad.

HABITAT.—Dry rocky sites, along the coast on well-drained soil, in situations protected from wind.

SEASON.—April to May.

RANGE.—British Columbia to California.



DISTRIBUTION IN BRITISH COLUMBIA.—Coastal islands and on both sides of the Strait of Georgia, extending as far north as Bute Inlet on the mainland and Seymour Narrows on the east side of Vancouver Island. Limited to relatively narrow strips along the coast, usually with Douglas fir or Garry oak.

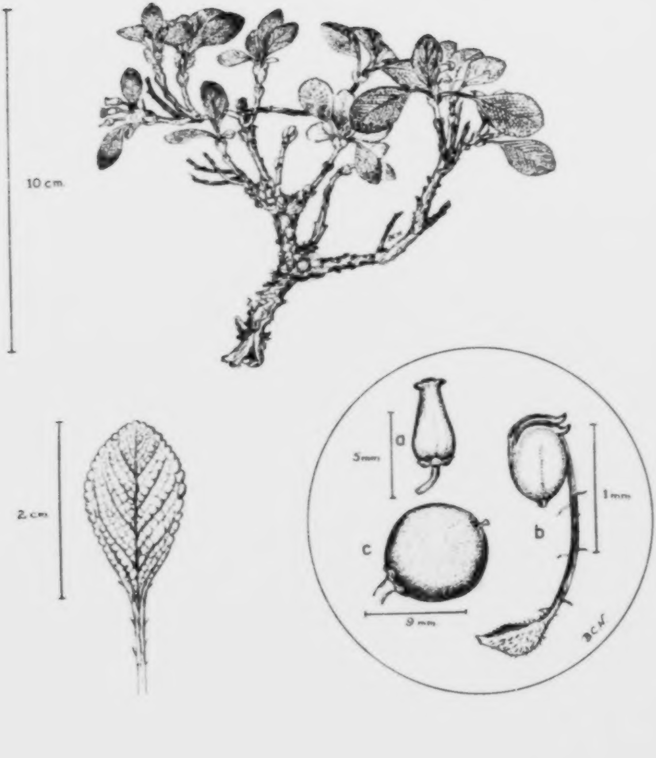
COMMENTS.—Although limited to a very small area in British Columbia, the madrona is easily identified by its shiny, large dark-green leaves, which remain green all winter, and by the bright cinnamon-red exfoliating bark, flaking off in thin paper-like sheets each summer, to reveal the bright green of the young bark underneath. The large conical clusters of small waxy-white flowers are succeeded by bunches of orange-red berries, used often for Christmas decoration. Madrona is a tree that commands attention and admiration at every season, and there is no American tree which equals this one in beauty.

The wood is too rare to be of any great commercial importance. However, it possesses a close grain and is hard, heavy, and strong, being used for furniture, tool-handles, fancy artistic work, and charcoal. The bark, which contains up to 45 per cent tannins, is used for tanning leathers. The fruit, which is dry and mealy in our species, possesses some narcotic properties and is eaten only by some birds. The fruits from a related species (*Arbutus unedo* L., strawberry tree) are also mealy, but sweet and edible, and in Mediterranean countries are utilized for wine, brandy, liqueur, and other alcoholic beverages.

ARCTOSTAPHYLOS ADANS (BEARBERRY, MANZANITA)

The name of this genus comes from the Greek *arctos* (bear) and *staphyle* (bunch of grapes), the fruit often eaten by bears. The original generic name was *Uva-ursi* (Latin), also meaning bear and berry. (The International Rules do not permit the use of two separate words for generic names.) Other synonyms for this genus include *Comarostaphylis* Zucc., *Xylococcus Nutt.*, and *Schizococcus* Eastw.

Evergreen shrubs, prostrate or tufted, sometimes erect and much branched, rarely shrubby trees, with reddish or brownish flaky bark and small winter buds covered by a few outer scales. Leaves alternate, coriaceous, petioled, or sessile, entire, often similar on both surfaces. Flowers small, white or pink in terminal panicles, sometimes reduced to a single raceme, perfect, regular, and 4- or 5-merous. Each flower scaly-bracted. Calyx persistent, deeply parted, the lobes oblong to orbicular. Corolla urn-shaped with short spreading lobes. The lobes rounded, recurved, and imbricate in the bud. Stamens usually 10, with dilated filaments, often hairy at the base; anthers with 2 dorsal awns, opening by terminal pores. Fruit fleshy, berry-like, with 4–10 stony 1-seeded nutlets.


10 cm
2 cm
5mm
a
1mm
b
c
9 mm
BCN

Alpine bearberry (*Arctostaphylos alpina* (L.) Spreng.)—*a*, single flower; *b*, stamen; *c*, fruit.

A genus of about forty-five species confined mainly to the west coast of North America. Many of our species are desirable evergreen shrubs used like *Arctostaphylos uva-ursi* for ground cover or *Arctostaphylos columbiana* as an ornamental shrub.

A. Leaves deciduous, crenate-serrate, thin veiny or withering-persistent; fruit juicy.

Leaves strongly rugose, subcoriaceous, ciliate toward base and on petiole, fruit black .... *A. alpina*

Leaves plain or slightly rugose, submembranaceous, not ciliate; fruit scarlet .... *A. alpina* subsp. *rubra*

AA. Leaves evergreen, entire, leathery, not conspicuously veiny; fruit dry and mealy.

Low and creeping or depressed shrubs; leaves 25 mm. long or less, glabrous or puberulent on the margin .... *A. uva-ursi*

Bushy shrubs, not creeping or depressed; leaves more than 25 mm. long, dull green, tomentose on both sides .... *A. columbiana*

***Arctostaphylos alpina* (L.) Spreng. Alpine Bearberry**

SYNONYMS.—*Arbutus alpina* L., *Arctous alpina* (L.) Nied., *Mairania alpina* (L.) Desv.

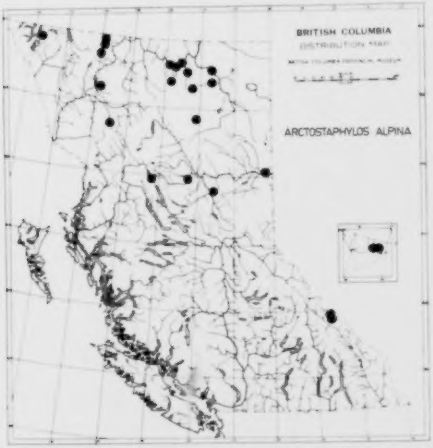
DESCRIPTION.—*Plant:* Deciduous prostrate or tufted shrub up to 15 cm. tall with brittle branches, shreddy papery bark and slender branchlets; twigs with persistent inner scales of winter buds. *Leaves:* Slender-petioled, obovate or oblanceolate up to 4 cm. long, subcoriaceous, deeply veiny-rugose, crenate-serrate, green with reddish tinge, often turning red in autumn and then withering; persistent, often ciliate at the base and along petiole with bristles up to 2 mm. long. *Flowers:* 5-merous in terminal clusters, 2 or 3, sometimes 4, expanding with or before leaves, and supported by small oval bracts; corolla urceolate, white or pinkish with short greenish lobes, up to 5 mm. long; anthers usually with only rudimentary short awns. *Fruit:* Juicy drupe, purple to purplish-black with 5 distinct, separate nutlets, edible but unattractive.

Subsp. *rubra* (Rehd. & Wils.) Hult. (*Arctostaphylos rubra* (Rehd. & Wils.) Fern., *Arctous erythrocarpa* Small) similar to species but with more ascending branchlets, long petiolated, thin, less rugulose leaves and red fruits.

HABITAT.—Alpine tundra, rocky soil on subalpine and alpine barrens.

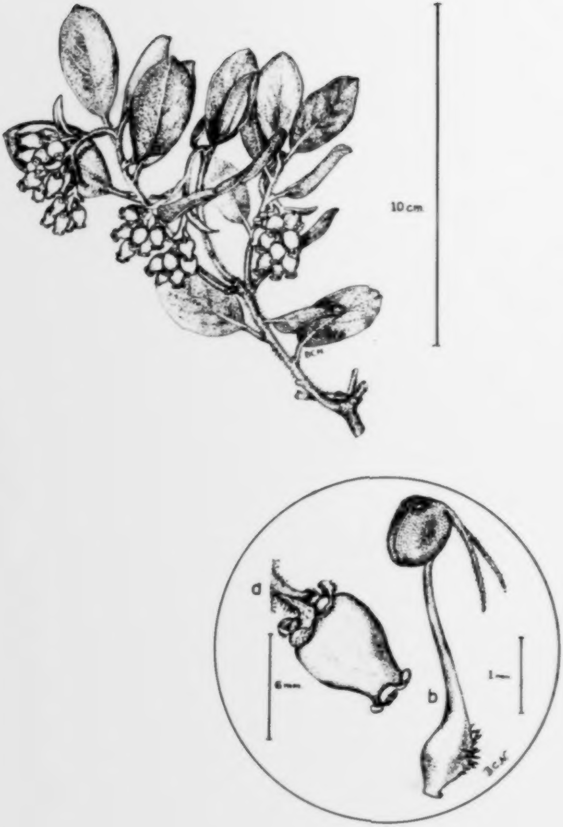
Season.—End of May to July.

Range.—Circumpolar, Alaska, Yukon to Labrador and Newfoundland, south to British Columbia; Greenland. Eurasia.



Distribution in British Columbia.—It is essentially a far northern plant and occurs with us most commonly in the Northern Interior and Haines Cut-off and Northeast. The most interesting records are those of W. C. McCalla (1945) at Yoho National Park in the Southeast Interior. To my knowledge this is the most southern known record, and it seems here to be far outside its range.

Comments.—Hulten (1948) was unable to find any clear line of demarcation between the red-fruited plant with long-petiolated thin, less rugulose leaves, which Fernald considers as a separate species, *Arctostaphylos rubra,* and the typical black-fruited *Arctostaphylos alpina* with thicker, smaller, shorter-petiolated, more rugulose leaves. Being aware of the difficulties in separating these two species, especially when ripe fruit is absent, the present author prefers to follow Hulten's suggestion in considering the red-


10 cm.
a
6 mm
b
1 mm

Manzanita (*Arctostaphylos columbiana* Piper)—*a*, single flower; *b*, stamen.

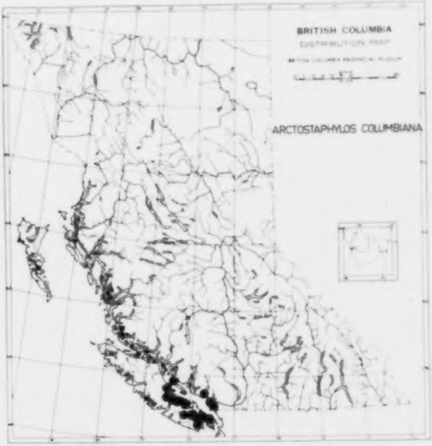
fruited plant as a geographical race of the black-fruited *Arctostaphylos alpina.*

Arctostaphylos columbiana **Piper** **Manzanita**

Synonyms.—*Arctostaphylos tomentosa* of several authors but not *A. tomentosa* (Pursh.) Lindl., *Arctostaphylos virgata* Eastw. ex Sarg., *Arctostaphylos setosissima* Eastw., *Arctostaphylos tracyi* Eastw.

Other Common Names.—Shaggy manzanita, hairy manzanita.

Description.—*Plant:* A large evergreen erect or spreading shrub up to 3.5 m. high with widely spreading branches; old branches smooth, brownish-red, and very attractive; young twigs and petioles grey-tomentose and commonly more or less hirsute with quite long scattered glandular or aglandular hairs. *Leaves:* Narrowly to broadly oblong, elliptic or ovate, with blades up to 5 cm. long, dull green, tomentose on both surfaces, especially beneath. *Flowers:* Perfect; inflorescence usually paniculate,



simple or few-branched, densely pubescent with well-developed bracts exceeding pedicels; calyx deeply parted; lobes orbicular and imbricate in the buds; corolla whitish or pinkish, up to 7 mm. long with short spreading lobes; lobes rounded and recurved; ovary densely white-pubescent. *Fruit:* Reddish, depressed-globose berry, up to 10 mm. broad.

HABITAT.—Dry exposed rocky outcrops and rocky slopes.

SEASON.—April to June.

RANGE.—Along the coast west of the Cascades from southern British Columbia to California.

DISTRIBUTION IN BRITISH COLUMBIA.—Apparently limited in its distribution to southern and southeastern Vancouver Island, the Gulf Islands, and on the mainland, restricted to Vancouver and vicinity. It seems to be particularly abundant around Victoria and along the east coast of Vancouver Island to Nanaimo whereever the habitat is suitable.

COMMENTS.—Widely spreading, very crooked, smooth brownish-red branches are noticeable features of manzanita's growth. An attractive shrub of rather dry rocky habitat, restricted to a small area, it is suitable for many rock gardens, provided that adequate acid conditions with good drainage are available.

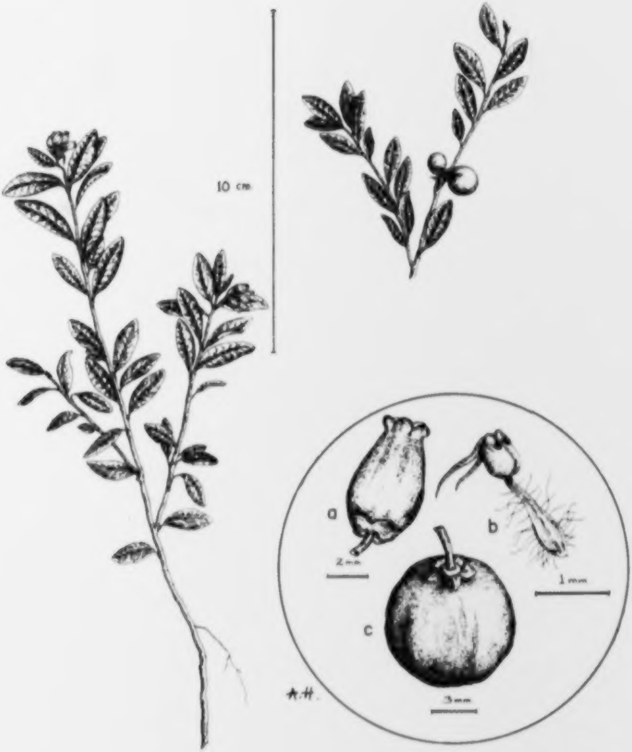
The edible berries may be used for jelly; the southern Indians used them for making cider.

***Arctostaphylos uva-ursi* (L.) Spreng. Kinnikinnick**

SYNONYMS.—*Arbutus uva-ursi* L., *Uva-ursi procumbens* Meth., *Mairania uva-ursi* Desv., *Uva-ursi buxifolia* Gray, *Uva-ursi uva-ursi* Brit., *Arctostaphylos officinalis* Wimm. & Grab., *Arctostaphylos procumbens* Patze., *Arctostaphylos media* Greene, *Arctostaphylos uva-ursi* var. *coactilis* Fern. & Macbr., *Arctostaphylos uva-ursi* var. *adenotricha* Fern. & Macbr., *Arctostaphylos uva-ursi* var. *pacifica* Hulten.

OTHER COMMON NAMES.—Bearberry, sandberry, red bearberry, mealberry, hog-cranberry.

DESCRIPTION.—*Plant:* Evergreen prostrate shrub often forming mats with long flexible rooting branches covered with papery exfoliating bark; new branchlets minutely puberulent, sometimes


10 cm
a
b
c
2 mm
1 mm
3 mm
A.H.

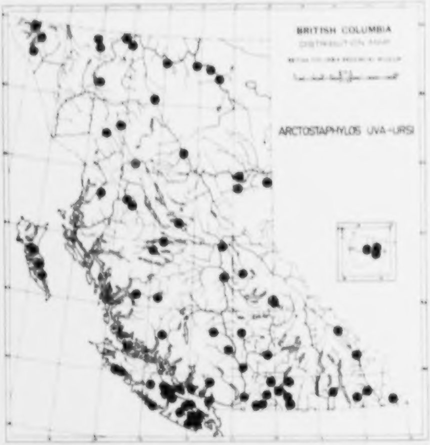
Kinnikinnick (*Arctostaphylos uva-ursi* (L.) Spreng.)—*a*, single flower; *b*, stamen; *c*, fruit.

glandular, becoming glabrate. *Leaves:* Short-petioled, obovate to spatulate, rounded to obtuse, up to 25 mm. long, entire, coriaceous, glabrous to puberulent, especially on the margin and midrib, dark green and paler beneath. *Flowers:* 5-merous, in dense terminal racemes in the axils of small bracts equalling the pedicels; calyx small with rounded lobes, about half the length of corolla; corolla urceolate up to 7 mm. long, white or tinged with pink, with very short rounded lobes; anthers with two awns, opening by 2 lateral pores; ovary glabrous. *Fruit:* Bright red berry up to 10 mm. in diameter with dry or mealy rather tasteless pulp.

HABITAT.—Sandy or rocky soils in exposed places, dry woods.

SEASON.—April to June.

RANGE.—Alaska to Labrador, south to British Columbia, California and New York, Nebraska, and New Mexico.



DISTRIBUTION IN BRITISH COLUMBIA.—One of our most common and most widespread representatives of the family, it occurs throughout the Province, often in sufficient abundance to form a typical community.

COMMENTS.—This plant often hybridizes with *Arctostaphylos columbiana* to produce a low procumbent shrub, often called *Arctostaphylos media* Greene. This hybrid is always found in areas where the two species occur. It differs from both species by having puberulent leaves beneath and a short few-flowered raceme. It also has glabrous pedicels and slightly depressed fruit.

Kinnikinnick, being an evergreen shrub which forms large mats, is suitable for covering sandy banks and rocky slopes and is considered as one of the best ground-cover ornamentals for dry exposed areas. The mealy and dry berries are rather tasteless when raw, but quite palatable when cooked. The powdered dry leaves are used occasionally by natives as a substitute for tobacco, or mixed with it. In some parts of Sweden and Russia the dried leaves, collected in the fall, are used medicinally as an astringent, tonic, and diuretic as they contain the volatile oils arbutin and guercetin. In some parts of Russia the dried leaves are also used as a tea called " Kutai " or " Caucasian tea."

According to Haskin (1934), kinnikinnick is an Eastern Indian word, signifying a mixture, and was applied to any smoking preparation, containing such various ingredients as native tobacco, hemlock gum, sumac bark, spice-bush bark, red dogwood bark, dried leaves of the poke plant and those of the kinnikinnick. The name kinnikinnick was finally applied to certain plants used, rather than the prepared mixture. The employees of the fur companies brought the name to the Pacific Coast, where it became the common name of this plant. The Coast Indian name for it seems to have been " sacacomis," upon which word the French constructed a pun, calling it " sac-a-commis," from the words *sac* (a bag) and *commis* (a clerk), since the clerks of the Hudson's Bay Company were very fond of smoking it and habitually carried a pouch full of the dried leaves.

CASSIOPE D. DON. (MOSS HEATHER)

The name of this genus, *Cassiope*, comes from Greek mythology (Cassiope, wife of Cephens and mother of Andromeda).

Low, prostrate, or creeping heath-like shrubs with ascending branches, leaves scale-like and imbricated in 4 rows or linear and spreading, long-persistent on the branches after dying. Flowers 1 to many, axillary, or terminal on slender pedicels, nodding in anthesis; calyx small, 4–5 parted, persistent, the lobes exceeding the tube; corolla white or pinkish, campanulate, 4–5-lobed or cleft, the lobes much shorter than the tube. Stamens 8–10; filaments glabrous; anthers globose with recurved awns on back, opening by apical pores. Ovary superior; style short. Fruit globose, 5-celled, many-seeded capsule. Seeds minute, wingless, smooth (*Harrimanella* Coville.)

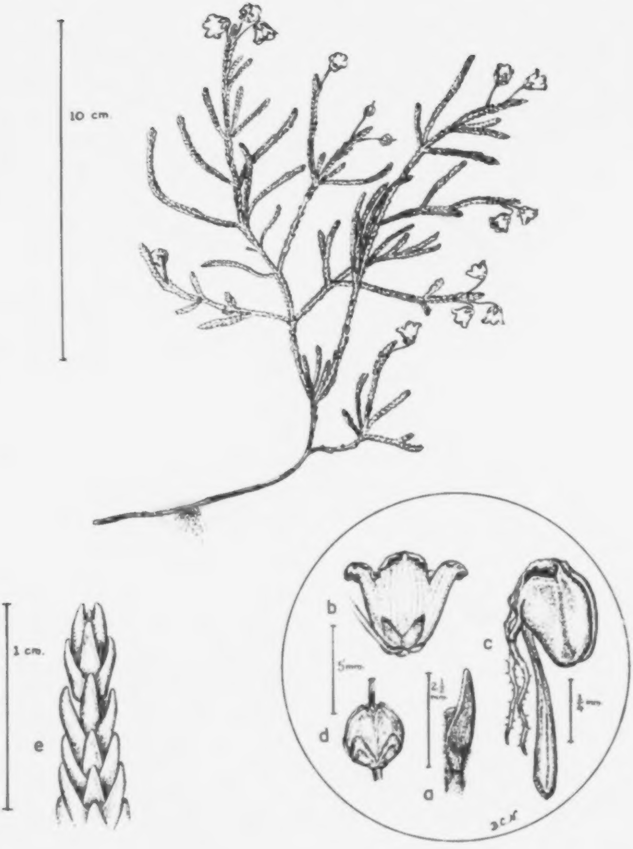
This is a rather small genus of not more than twelve species of the Northern Temperate and Arctic Zones. Four species are credited to British Columbia; some of the species are suited for alpine rock gardens requiring a moist, semi-shady habitat and rather acid soil.

A. Leaves alternate, spreading; flowers solitary terminal ...... *C. stelleriana*
AA. Leaves opposite, appressed; flower usually several, lateral or subterminal
  B. Leaves grooved on the back .... *C. tetragona*
  BB. Leaves not grooved on the back.
    Diameter of stem about 2 mm. broad, leaves not in four distinct rows .... *C. lycopodioides*
    Diameter of stem about 4 mm. broad, leaves in four distinct rows .... *C. mertensiana*

Cassiope lycopodioides (Pall.) D. Don
Club-Moss Mountain Heather

SYNONYMS.—*Andromeda lycopodioides* Pall.

DESCRIPTION.—*Plant:* Evergreen, low alpine shrub with more or less prostrate branches. *Stem:* Up to 20 cm. tall and about 2 mm. broad, covered by very closely and evenly appressed leaves, not in four distinct rows. *Leaves:* 2–3 mm. long, linear-oblanceolate, scarious margined, sessile, closely and evenly appressed, glabrous and rounded at the back and minutely puberulent at the extreme base. *Flowers:* 5–8 mm. long, one to few near the branch tips; pedicels glabrous, up to 10 mm. long in anthesis; sepals up to 2 mm. long, ovate, obtuse with hyaline margin; corolla campanulate, white, up to 8 mm. long, lobed about half-way to the base or less; anthers globose, wider than the short filaments and


10 cm.
1 cm.
e
b
5 mm
d
2½ mm
a
c
¼ mm
DCN

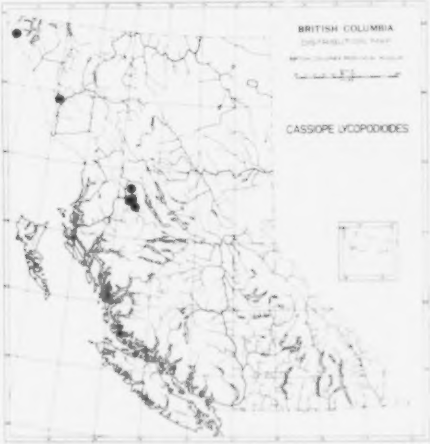
Club-moss mountain heather (*Cassiope lycopodioides* (Pall.) D. Don.)—*a*, single leaf; *b*, single flower; *c*, stamen; *d*, fruit; *e*, branch showing arrangement of the leaves.

not broadened at the base. *Fruit:* Globose capsule, about 3 mm. long.

HABITAT.—Alpine rocky slopes and crevices.

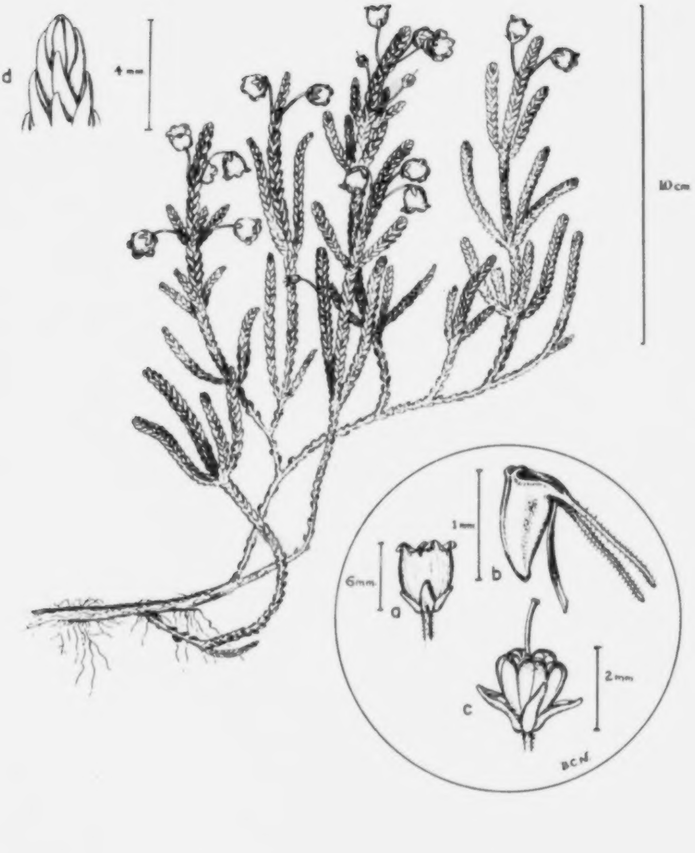
SEASON.—July to August.

RANGE.—Aleutian Islands, southeast Alaska, British Columbia. Also east Asia.



DISTRIBUTION IN BRITISH COLUMBIA.—Extremely rare in the Province and known only from the Northern Interior, with a very limited number of localities (*see* Comments). No doubt that in the near future many new localities will be added, due to the fact that this plant was overlooked because of its similarity to *C. mertensiana.* At the moment the records are too incomplete to give a clear pattern of its distribution.

COMMENTS.—One of the most interesting species of the mountain heathers and an important component of the alpine communities in some areas. Quite common in the Aleutian Islands but apparently more rare eastwards. Very rare in British Columbia. The first record in our Province came from White Pass, collected


d
4 mm
10 cm
1 mm
b
6mm
a
2mm
c
BCN

Western moss heather (*Cassiope mertensiana* (Bong.) G. Don.)—*a*, single flower; *b*, stamen; *c*, dehisting fruit; *d*, tip of branch showing leaf arrangement.

by E. Lohbrunner (1936) and identified by A. E. Porsild. Recollected by S. S. Holland (1959) on the Barrington River, 35 miles west of Telegraph Creek. Recently collected by A. F. Szczawinski in the Smithers and Telkwa areas and by J. A. Calder on Hudson Bay Mountain, northwest of Smithers. It is quite possible that this species was overlooked as it somewhat resembles *C. mertensiana*. Its common name, club-moss mountain heather, is given because of its likeness in habit to club-moss.

Cassiope mertensiana **(Bong.) G. Don.**

Western Moss Heather

SYNONYMS.—*Andromeda mertensiana* Bong., *Andromeda cupressina* Hook.

OTHER COMMON NAMES.—Mountain heather, mertens mountain heather, moss heather, moss heath.

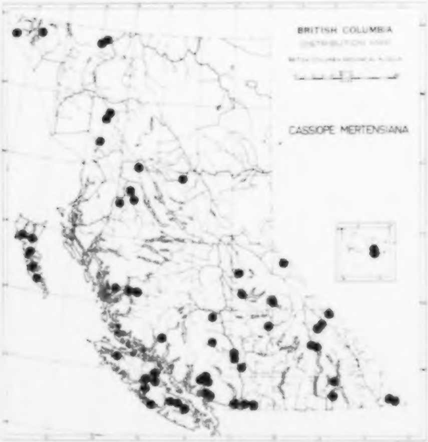
DESCRIPTION.—*Plant:* Evergreen, low alpine shrub, forming a widespread mat. *Stem:* Up to 30 cm. tall, completely covered by the leaves. *Leaves:* Up to 5 mm., opposite, sessile, appressed, distinctly 4-ranked, ovate-lanceolate in shape and grooved only at the extreme base. *Flowers:* Up to 10 mm. long, one to few near the branch tips; sepals up to 3 mm. long, reddish, ovate, entire to erose at the apex; corolla campanulate, white with lobes much shorter than the tube. Stamens up to 3 mm. long with the filaments not enlarged at the base and much longer than the anthers. *Fruit:* Subglobose capsule up to 4 mm. long.

HABITAT.—Banks and rock crevices. Most commonly at timber-line and above.

SEASON.—July to August.

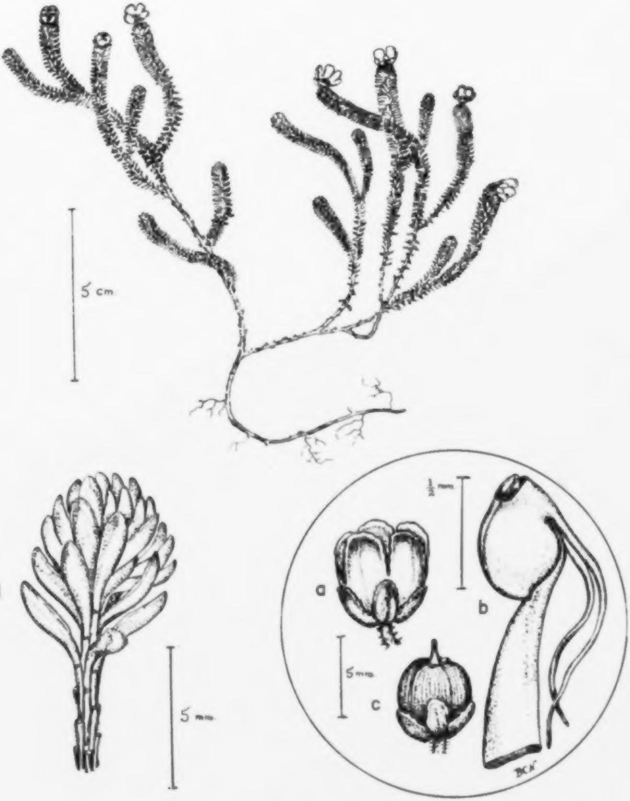
RANGE.—Alaska, Yukon, and British Columbia south to central California and east to Nevada, Idaho, and southern Montana.

DISTRIBUTION IN BRITISH COLUMBIA.—One of our commonest heathers and widely spread throughout the Province, particularly in alpine and subalpine areas of the Queen Charlotte Islands, Vancouver Island, and Southwest and Southeast Interior. The absence of records from the Northeast is due to the lack of suitable habitat, as this species is typically mountainous.



COMMENTS.—The specific name *mertensiana* is after the German botanist Mertens (1764–1831). Two varieties are generally recognized—var. *mertensiana*, characterized by puberulent stems and pedicels, entire calyx lobes, and glabrous leaves, and var. *gracilis* (Piper) C. L. Hitchc., characterized by glabrous stems and peduncles and minutely ciliate leaves. Most of our material is referable to var. *mertensiana*. Intermediate forms with sparsely puberulent stems and glabrous peduncles and leaves do occur in British Columbia, and often it seems impossible to separate the varieties on the basis of these differences. Some of our specimens are extremely large and robust, particularly those from the Northern Interior and Vancouver Island (Forbidden Plateau), reaching the size of 30 cm. or more, with large flower, having corollas up to 10 mm. long.

Western moss heather is found in great profusion on many alpine areas of our Province, forming a characteristic tundra community, and is more common than any other species of this genus.


5 cm
d
5 mm
½ mm
a
b
5 mm
c

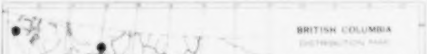
Alaska moss heather (*Cassiope stelleriana* (Pall.) DC.)—*a*, single flower; *b*, stamen; *c*, fruit; *d*, tip of branch showing leaf arrangement.

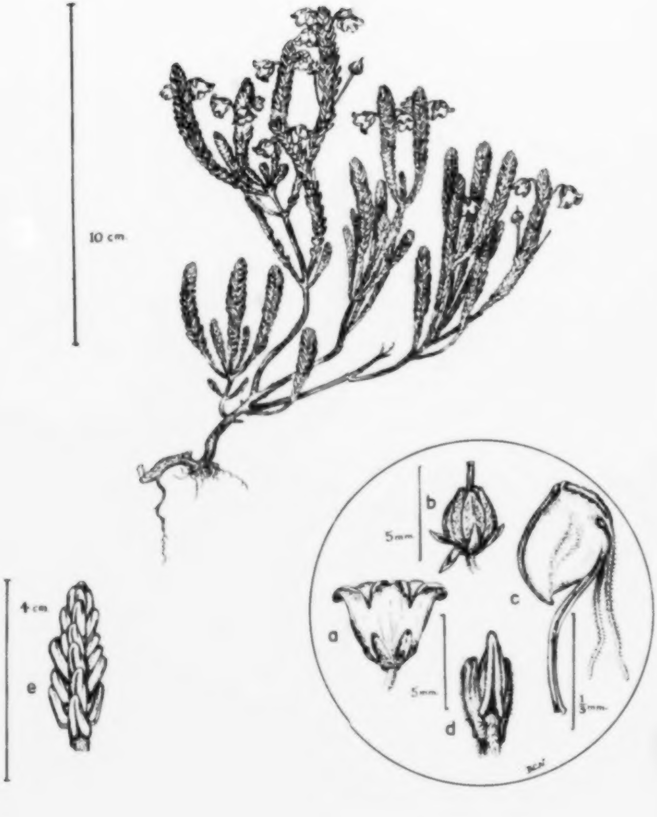
Cassiope stelleriana (Pall.) DC. Alaska Moss Heather

SYNONYMS. — *Andromeda stelleriana* Pall., *Erica stelleriana* Willd., *Harrimanella stelleriana* DC., *Menziesia stelleriana* Fish. ex Hook., *Bryanthus stelleri* D. Don.

OTHER COMMON NAMES.—Alaska heather, Alaska moss heath, moss heather.

DESCRIPTION.—*Plant:* Evergreen, diffuse matted shrub with low spreading branches. *Stem:* Up to 15 cm. tall, minutely puberulent. *Leaves:* Spreading, alternate, very numerous, linear-oblanceolate, short petiolate, glabrous or cilialate, flattish above and slightly keeled beneath, up to 5 mm. long. *Flower:* Terminal, mostly single, about 5 mm. long; pedicels short, puberulent, exceeding the leaves in anthesis, about twice as long in fruit; sepals about 3 mm. long, oblong-ovate, reddish, erose-denticulate; corrolla white or tinged with pink, lobed about half-way to the base, broadly campanulate, up to 6 mm. long; filaments broadened at the base; anthers globose, not much wider than the filaments. *Fruit:* Subglobose capsule about 5 mm. long.




10 cm
4 cm
e
b
5mm
c
a
5mm
d
1/3 mm
BCN

White mountain heather (*Cassiope tetragona* (L.) D. Don.)—*a*, single flower; *b*, fruit; *c*, stamen; *d*, leaf showing characteristic furrow; *e*, tip of branch showing leaf arrangement.

HABITAT.—Alpine meadows, bogs, rocky slopes, and gravelly creek-beds at and above timber-line.

SEASON.—June to August.

RANGE.—Alaska, British Columbia, south to northern Washington (Mount Rainier). Also Japan and east Siberia.

DISTRIBUTION IN BRITISH COLUMBIA.—Mostly Coastal, but records are too scattered to give a clear picture of the distribution pattern, except that it occurs quite commonly around Bella Coola, Hazelton, and Skeena Mountain area, Cassiar Mountains, and Haines Cut-off; also represented on the Queen Charlotte Islands. Generally this species does not occur below the 52nd parallel, except in the mountain areas between Chilliwack, Hope, and Mount Rainier, Washington. These southern records seem to be considerably out of its normal range.

COMMENTS.—In habit this species differs from others as the leaves are spreading and linear-oblanceolate and very needle-like. It resembles to some extent *Empetrum nigrum*, an evergreen shrub belonging to the Crowberry Family. It is a very stable species, characteristic in many areas of the alpine heath, often occurring in masses. It is typically a Pacific Coast species and one of the most graceful mountain heathers.

***Cassiope tetragona* (L.) D. Don. White Mountain Heather**

SYNONYMS.—*Andromeda tetragona* L., *Cassiope saximontana* Small.

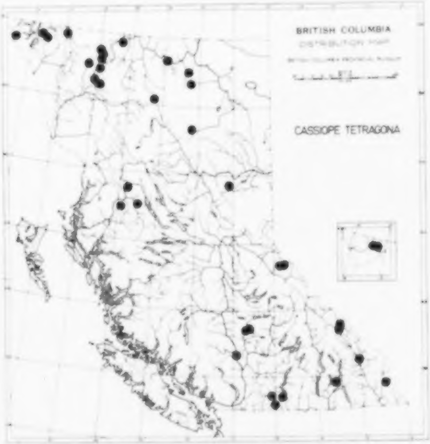
OTHER COMMON NAMES.—Lapland cassiope, four-angled mountain heather, moss heather.

DESCRIPTION.—*Plant:* Evergreen, low alpine shrub with ascending branches. *Stem:* Up to 30 cm. tall, rather stout and completely covered by the leaves. *Leaves:* Up to 5 mm., numerous, opposite, ovate, very thick with a deep furrow on the back, 4-ranked, puberulent and ciliolate. *Flowers:* One to few, near the branch tips with pedicels up to 25 mm. long; sepals about 2.5 mm. long, reddish, ovate, entire; corolla campanulate, up to 10 mm. long, white or pinkish, lobes ovate about half-way to the base; stamens 2 mm. long with the filaments not enlarged at the base. *Fruit:* Globose, glabrous capsule about 3 mm. broad.

HABITAT.—Rocky slopes, alpine meadows, and tundra above timber-line.

SEASON.—Mid-June to August.

RANGE.—Alaska, Yukon over Banks Island, northern Ellesmere Island, Baffin Island to west Newfoundland; British Columbia as an alpine in the Rockies to Glacier National Park and on the Pacific Coast to Okanogan County, Washington. Eurasia.



DISTRIBUTION IN BRITISH COLUMBIA.—Generally distributed and most common in the Northern Interior, particularly in the Cassiar Mountains, widely scattered in the mountains of the Southwest and Southeast Interior. Known also in the Hazelton Mountain area and Haines Cut-off. Not collected on the Queen Charlotte Islands, Vancouver Island, or extreme Coast.

COMMENTS.—In its habit it is easily confused with *C. mertensiana*, but the leaves with their deep dorsal furrows are very distinctive, and careful examination of the leaves with the use of a lens is advisable. Two distinct forms of the plant occur in British Columbia—var. *saximontana* (Small) Hitchc., characterized by rather small flowers (corolla not over 5–6 mm. long) and pedicels not more than two to three times the length of the leaves, and var. *tetragona*, characterized by much larger flowers (corolla 6–10 mm. long) and proportionately longer pedicels. Most of our material is referrable to var. *saximontana* and is confined mainly to high elevations. There is no evidence of intergradation between these two varieties in our Province. In Alaska this plant is much used by Eskimos as a fuel during the summer.

CHAMÆDAPHNE MOENCH. (LEATHER LEAF)

The name of this genus comes from the Greek *chamai* (on the ground) and *daphne* (laurel), alluding to the low habit and evergreen leaves.

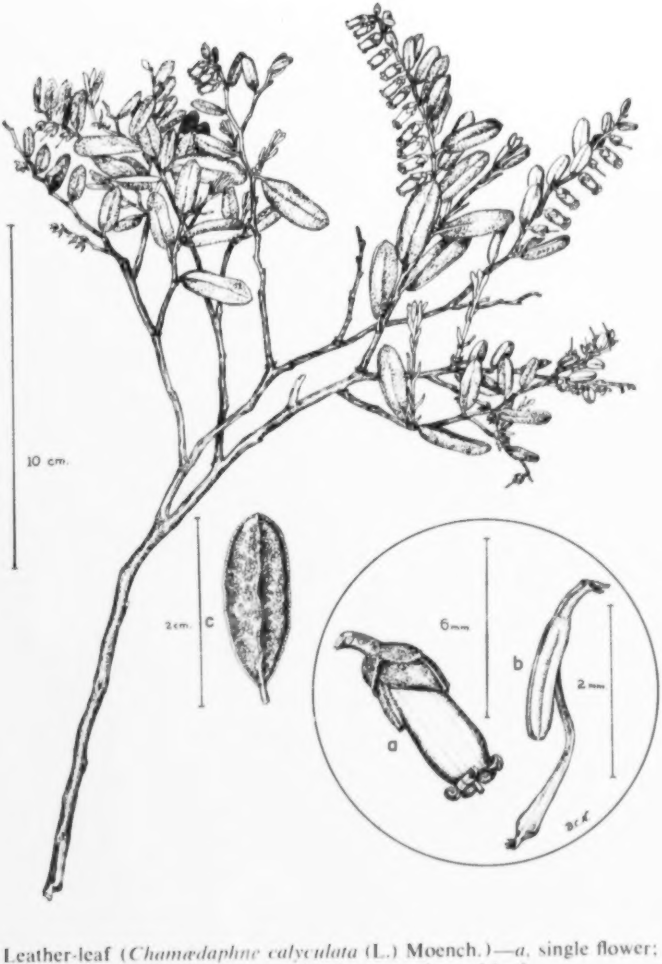
Low much-branched circumpolar shrubs, having small buds with several outer scales and brown-lepidote stems. Leaves alternate, short petioled, evergreen, coriaceous and scurfy, especially beneath. Flowers white, in the axils of the upper small leaves, forming one-sided leafy racemes. Individual flower 5-merous, with deeply 5-parted calyx, persistent in fruit and closely subtended by 2-bractlets. Corolla more or less cylindric, slightly narrowed at the throat with 5 short lobes. Stamens 10, with anther-sacs terminating into an elongated tube opening by a terminal pore. Ovary 5-celled, with elongate style and truncate stigma. Fruit depressed-globose, 5-locular, many-seeded capsule. Seeds small, wingless. A monotypic genus.

***Chamædaphne calyculata* (L.) Moench.** **Leather Leaf**

SYNONYMS.—*Andromeda calyculata* L., *Cassandra calyculata* Seemann.

OTHER COMMON NAME.—*Cassandra.*

DESCRIPTION.—*Plant:* Low, evergreen, branching shrub up to 1.5 m. tall with small buds having several outer scales and brown-lepidote stems. *Leaves:* Alternate, elliptic or obovate to oblong or lanceolate up to 5 cm. long, obtuse or acute, revolute, leathery, dull green and slightly scaly above, densely so beneath. *Flowers:* In the axils of the upper leaves, forming one-sided terminal leafy


10 cm.
2cm.
c
6mm
b
2mm
a

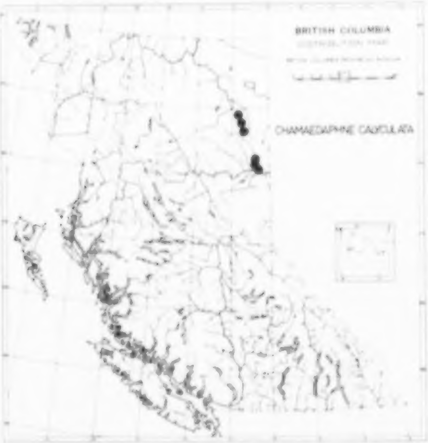
Leather-leaf (*Chamædaphne calyculata* (L.) Moench.)—*a*, single flower; *b*, stamen; *c*, showing lower surface of leaf.

racemes, 5-merous; calyx small, persistent in fruit, deeply 5-parted, up to 3 mm. long, closely subtended by 2 bractlets; corolla white, more or less cylindric, slightly narrowed at the throat, up to 7 mm. long; stamens 10, outer locules tapering into tubular beak, opening by a terminal pore, awnless. *Fruit:* Depressed-globose, 5-locular, many-seeded capsule up to 5 mm. broad, equalled or surpassed by the sepals.

HABITAT.—Sphagnum bogs and muskeg, often forming dense thickets.

SEASON.—June to July.

RANGE.—Subarctic, circumpolar. Alaska, Yukon to Labrador and Newfoundland, south to northern British Columbia, Minnesota, north Indiana and Georgia.



DISTRIBUTION IN BRITISH COLUMBIA.—Rare and limited in its distribution to the northeast part of the Province.

COMMENTS.—From the distribution map it is quite obvious that all the records come from a relatively small area, mainly along the Alaska Highway, where J. Grant (1953) collected it at Mile

281.5 and J. A. Calder (1960) at Miles 249, 253, and 262. In addition, C. F. Crickmay (1922) collected it on the St. John–Nelson trail, and I believe this was the first record for the Province. A. F. Szczawinski (1961) added a number of localities from along the Alaska Highway, between Fort St. John and Summit Pass, where in suitable habitat it was very abundant and even the dominant species on some sphagnum bogs.

Leather leaf, being an attractive evergreen species, it easy to distinguish by its leafy racemes, composed of axillary white and nearly cylindric flowers, narrowed only slightly at the throat.

CHIMAPHILA Pursh. (PRINCE'S PINE)

The name of this genus, *Chimaphila,* comes from the Greek *cheima* (winter) and *philos* (loving) because of its evergreen foliage.

Low herbaceous or partly woody perennials, with creeping root-stocks and branching stems. Leaves evergreen, thick, denticulate, short petiolate, usually crowded into irregular whorls. Flowers, 1 to several, nodding and arranged in long-peduncled, terminal, umbel-like racemes. Perianth 5-merous; sepals 5, persistent, distinct nearly to the base; petals 5, white or purplish; orbicular, concave, forming a saucer-shaped corolla. Stamens 10; anthers awnless, opening by pores; filaments conspicuously enlarged and usually hairy above the base. Ovary superior, 5-lobed. Fruit erect, globose, 5-celled capsule, deeply furrowed, splitting from the apex downward. A rather small genus with six species of North America and Asia. Two species credited to British Columbia.

Flowers, up to 3; stem reddish; filaments hairy over entire swollen portion .... *C. menziesii*

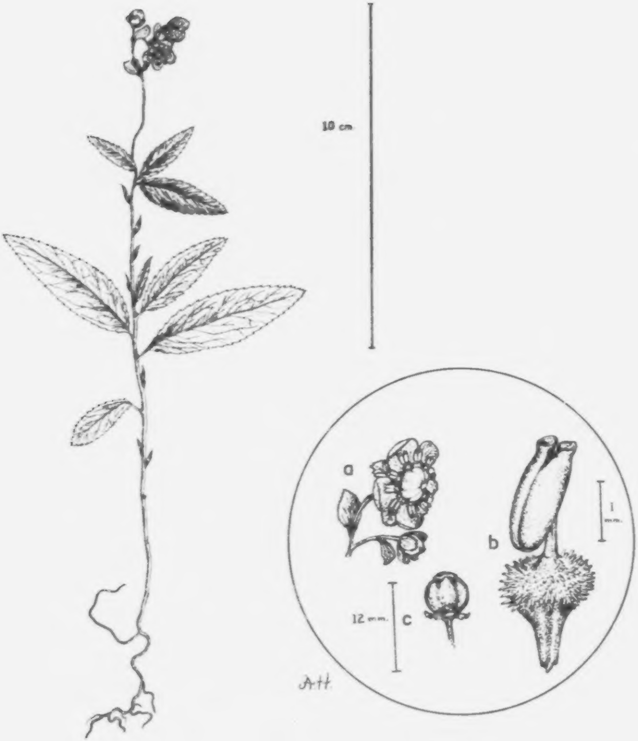
Flowers, usually more than 3; stem greenish, filaments ciliate only at the base of the swollen portion .... *C. umbellata*

***Chimaphila menziesii* (R. Br.) Spreng. Little Prince's Pine**

Synonym.—*Pyrola menziesii* R. Br. ex D. Don.

Other Common Name.—Pipsissewa.

Description.—*Plant:* Evergreen, rather slender, slightly woody perennials, rising from long horizontal root-stock. *Stem:*

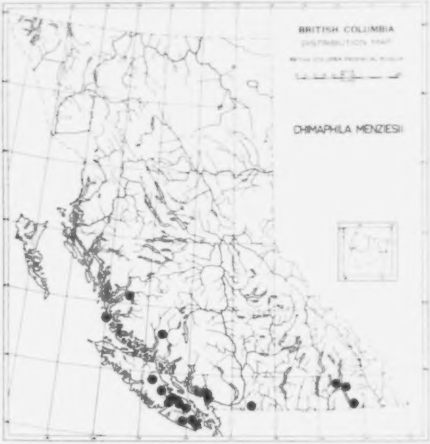

10 cm
a
b
1 mm.
12 mm.
c

Little prince's pine (*Chimaphila menziesii* (R. Br.) Spreng.)—*a*, single flower; *b*, stamen; *c*, fruit.

Up to 20 cm. tall, erect or nearly so, simple or sparingly branched, glabrous and reddish. *Leaves:* Persistent, glabrous, 2–5 cm. long, sharply serrate to entire, lanceolate to ovate or oval, on slender petioles not longer than 8 mm. *Flowers:* 1–3 on peduncles up to 6 cm. long; bracts broadly ovate or obovate, scarious, usually persistent after anthesis; sepals about 5 mm. long, rounded, erose; petals up to 7 mm. long, spreading, suborbicular, concave, white or pinkish; anthers with filaments swollen near the middle and hairy over entire swollen portion. *Fruit:* Globose, 5-celled capsule, 5–7 mm. broad.

HABITAT.—Moist woods, especially under conifers, on decayed and rotten logs in the forest; shady or semi-shady places on raw humus.

SEASON.—June to August.



RANGE.—British Columbia south to Southern California and east to Idaho.

DISTRIBUTION IN BRITISH COLUMBIA.—Limited in its distribution, being mainly confined to Vancouver Island and the Coastal area. Its sporadic occurrence in the Southeast Interior, where a few localities were reported in the Kootenay Lake area, indicates that the ecological conditions there are similar to those on the Coast.

COMMENTS.—The specific name *menziesii* is in honour of Dr. A. Menzies (1754–1842), a Scottish physician and naturalist and well-known plant explorer who accompanied Capt. George Vancouver on his voyages of 1789–1795. In general appearance *C. menziesii* is a smaller plant than *C. umbellata*, with fewer leaves, broadest at or below the middle, flowers arranged in much smaller clusters, and with a reddish stem, unlike the greenish stem of other species.

Chimaphila umbellata **(L.) Bart.** **Western Prince's Pine**

SYNONYMS.—*Pyrola umbellata* (L.) Bart., *Chimaphila occidentalis* Rydb., *Chimaphila umbellata* var. *occidentalis* Blake, *Chimaphila umbellata* ssp. *occidentalis* (Rydb.) Hulten.

OTHER COMMON NAMES.—Pipsissewa, prince's pine.

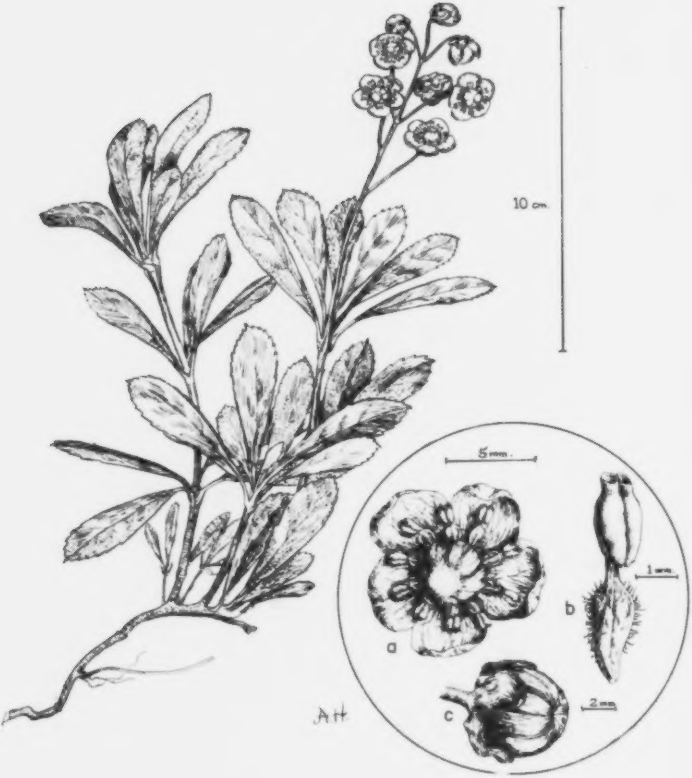
DESCRIPTION.—*Plant:* Evergreen, quite stout, slightly woody perennial with creeping root-stock. *Stem:* Up to 35 cm.; simple or branched, glabrous, greenish. *Leaves:* Whorled, bright green and lustrous above, short petioled, glabrous, usually oblong-obovate, obtuse or acutish, sharply serrate, 2.5–6 cm. long and up to 2 cm. broad. *Flowers:* 3–10 or sometimes more, somewhat corymbose; peduncles 5–10 cm. long; pedicels often puberulent and glandular; sepals 1–2 mm. long, oval, erose; petals white, pinkish or somewhat rose, oval, up to 6 mm. long; anthers with filaments ciliate at the base of the swollen portion. *Fruit:* Depressed-globose capsule up to 7 mm. broad.

HABITAT.—Open or dense coniferous forest, moist woods and banks in humus soil.

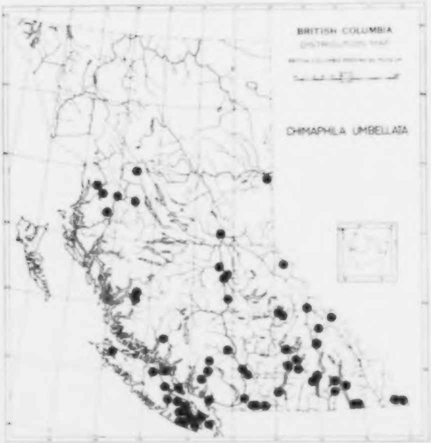
SEASON.—June to August.

RANGE.—Alaska, British Columbia to Southern California, east to Montana, Colorado, and Utah. Eurasia.

DISTRIBUTION IN BRITISH COLUMBIA.—Found commonly in suitable habitats on the Coast and in the Southwest and Southeast Interior, and particularly abundant on the southeast coast of Van-


10 cm.
5 mm.
1 mm.
2 mm
a
b
c
AH

Western prince's pine (*Chimaphila umbellata* (L.) Bart.)—*a*, single flower; *b*, stamen; *c*, fruit.



couver Island. Very sporadic in the Central Interior and southern part of the Northern Interior. Generally does not occur north of 56° north.

Comments.—Our material is referable to the var. *occidentalis* (Rydb.) Blake. According to Hulten (1948), " var. *occidentalis* differs from the European type in more acute leaves, obscurely veined beneath, in more racemose inflorescence and less pubescent ovary. It seems to me evident that it is one of the races in which *C. umbellata* is differentiated in its circumpolar area."

Western prince's pine is an attractive evergreen, a slightly woody perennial herb with shiny, leathery, sharply serrate leaves, borne in whorls about the stem, and waxy delightfully fragrant flowers.

Formerly this plant had a considerable medicinal reputation, both among the whites and Indians. The leaves, " Foliachimaphilæ," were used in medicine for stones in the bladder as they contain ericolin, arbutin, chimaphilin, urson, tannin, and gallic acid. However, they are now of little value. In some parts of Central Europe this plant is still used as a home remedy for healing wounds.

CLADOTHAMNUS Bong. (COPPER BUSH)

The name of this genus comes from two Greek words *klados* (sprout or slip) and *thamnos* (a shrub). Deciduous, erect or ascending shrub, up to 2 m. high, with young branchlets brownish, glabrous, and winter buds covered with 2 or 3 outer scales. Leaves thin and pale green, often crowded at the ends of branchlets. Flowers single, perfect, terminal on short leafy shoots, copper-coloured; calyx with 5 narrowly linear lobes connate only at the base; corolla of 5 distinct narrow petals, spreading in anthesis; stamens, usually 10, shorter than the petals and declined. Ovary superior with 5-lobed elongated and recurved style. Fruit 5-or sometimes 6-valved, septicidal capsule, many-seeded. A monotypic genus of northwestern America.

Cladothamnus pyrolæflorus Bong. Copper Bush

Synonym.—*Tolmiea occidentalis* Hook.

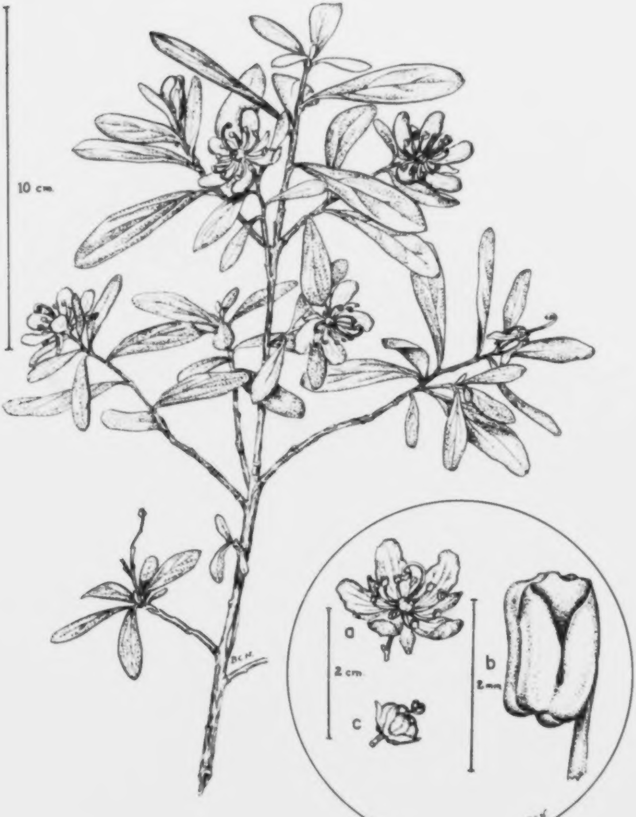
Other Common Name.—*Cladothamnus.*

Description.—*Plant:* Deciduous, erect or ascending shrub up to 2.5 m. high with glabrous or very sparingly puberulent young stems and exfoliating bark. *Leaves:* Nearly sessile, entire, light green, very thin, elliptic-oblanceolate to oblanceolate, obtuse or rounded at the apex, narrowed below to a short petiole, up to 4 or sometimes 5 cm. long. *Flowers:* Perfect, mostly solitary and terminal; calyx with 5 narrowly linear lobes, connate only at the base; calyx lobes herbaceous, ciliolate, about 7 mm. long and often unequal; corolla rotate, coppery-pink; petals 5, oblong-elliptic, spreading, up to 15 mm. long; stamens 10, shorter than the petals; filaments glabrous and declined; anthers opening from the apex by a longitudinal slit almost to the base; style elongate and recurved, about 1 cm. long. *Fruit:* 5- or sometimes 6-valved, many-seeded, septicidal capsule, up to 7 mm. across, surrounded and exceeded by the herbaceous sepals.

Habitat.—Wet forests, along mountain streams, and edges of bogs.

Season.—June to July.

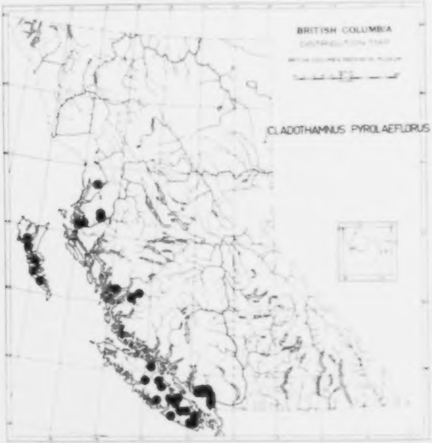
Range.—From Alaska along the coast to Oregon.


10 cm.
a
2 cm.
c
b
2 mm
BCN.
BCN.

Copper bush (*Cladothamnus pyrolæflorus* Bong.)—*a*, single flower; *b*, anther; *c*, fruit.

Distribution in British Columbia.—Most abundant on Vancouver Island, Gulf Islands, and the Queen Charlotte Islands. Typically Coastal species with clearly defined distribution in our Province.

Comments.—Exfoliating bark, light green, very thin leaves and coppery-salmon flower make this shrub easy to identify. It is easily adaptable for cultivation in Coastal gardens with very acid soil and shady location.



GAULTHERIA L. (FALSE WINTERGREEN)

The genus is named in honour of Jean Francois Gaultier (1708–56), physician and botanist of Quebec.

Evergreen, upright or prostrate shrubs, rarely shrubby trees, with alternate persistent, coriaceous, and shining leaves, often forming mats. Flowers white or pinkish, solitary and axillary, or in axillary or terminal racemes with bracteolate pedicels. Perianth 5- rarely 4-merous; calyx usually deeply lobed; corolla gamopetalous, urceolate, or campanulate; stamens 8 or 10; filaments expanded near their base; anthers opening by lateral or terminal pores, with or without awns. Fruit depressed capsule, many-seeded, enclosed when ripe by the calyx or its base, which thickens and becomes fleshy, so as to appear as a globular to ellipsoid pulpy pseudo-berry. A genus of about 150 species in the cool zone of North and South America, Asia, and Australia, especially abundant in the Andes. Some of the species are desirable as evergreen ornamentals and ground cover. They are more conspicuous in fruit than in bloom. The fruit is edible but not of any special flavour, although sometimes used in cooking.

The common name, wintergreen, actually applies to *Gaultheria procumbens* L., a low shrub of eastern North America and a source of oil of wintergreen. This oil contains methyl salicylate, which has antiseptic, anti-rheumatic, and flavouring properties.

A. Fruit white; flowers 4-merous; leaves less than 1 cm. long .... *G. hispidula*

AA. Fruit red or bluish-black; flowers 5-merous; leaves more than 1 cm. long.

  B. Flowers solitary in the leaf axils, campanulate; dwarf shrubs.

    Calyx glabrous; leaves oval, averaging 10–15 mm. long .... *G. humifusa*

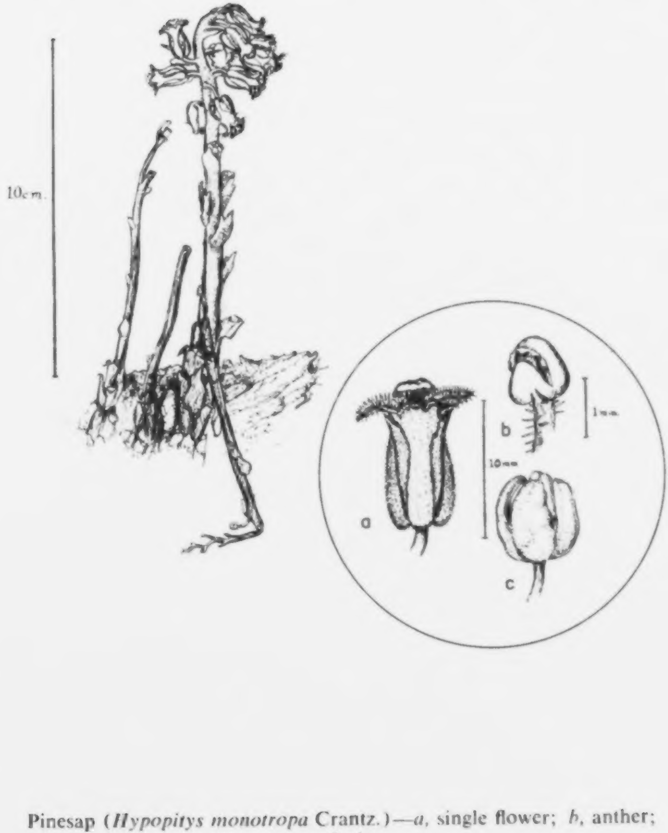
    Calyx hairy; leaves ovate or subcordate, 20–40 mm. long .... *G. ovalifolia*

  BB. Flowers in elongated many-flowered terminal raceme, urceolate; filament hairy; semi-erect shrubs up to 2.5 m. tall .... *G. shallon*

***Gaultheria hispidula* (L.) Muhl. Creeping Snowberry**

Synonyms.—*Vaccinium hispidulum* L., *Oxycoccus hispidulus* Pers., *Gaultheria serpyllifolia* Pursh., *Chiogenes serpyllifolia* Salisb., *Phalærocarpus serpyllifolia* G. Don., *Lasierpa hispidula* Torr., *Chiogenes hispidula* T. & G.

Other Common Names.—Maidenhairberry, moxieplum, capillaire.


10cm
a
b
c
1mm
10mm

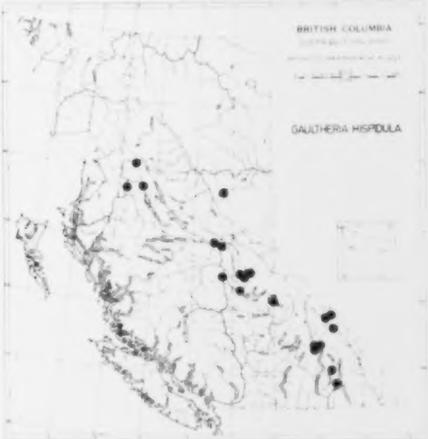
Pinesap (*Hypopitys monotropa* Crantz.)—*a*, single flower; *b*, anther; *c*, fruit.

DESCRIPTION.—*Plant:* Slender-stemmed, creeping, matted delicate evergreen, covered with brownish appressed hairs. *Leaves:* Evergreen, abundant, coriaceous, ovate and revolute up to 1 cm. long, with appressed brown hairs beneath, thyme-like in appearance. *Flowers:* Mostly solitary in the axils of the leaves, on short nodding peduncles, 4-merous, subtended by 2 bracts; calyx campanulate, deeply 4-parted; corolla about 2 mm. long, deeply 4-cleft; stamens 8, inserted on 8-toothed disk, with broad and short filaments; anthers not awned at the back, but each with 2 minutely erect appendages, opening by a large lateral pore; ovary partly inferior. *Fruit:* White berry, 5–10 mm. long, juicy with a mild flavour of wintergreen.

HABITAT.—Peat bogs, wet coniferous woods usually over sphagnum or acid organic substrata.

SEASON.—End of May to July.

RANGE.—British Columbia to Newfoundland and Labrador, south to northern Idaho, Minneapolis, Michigan, Wisconsin, Pennsylvania, and Connecticut.



DISTRIBUTION IN BRITISH COLUMBIA.—Quite common in Southeast Interior, particularly in Revelstoke and Yoho National Park areas, occasionally in Northern Interior with localities in Driftwood Valley and Smithers areas.

COMMENTS.—Due to the fact that the ovary is partly inferior, the species has been placed in a distinct genus, adjacent to *Vaccinium*, and in many books it is listed as *Chiogenes*. However, technically it is quite correct to classify it with *Gaultheria*.

This beautiful tiny creeping shrub of a wet acid habitat has bright white, juicy, delicately acid, and aromatic berry-like fruit and is thus very easily separated from other species.

A beverage was made from the leaves and sweetened with maple sugar by the Indians of Wisconsin and Minnesota.

Gaultheria humifusa (Grah.) Rydb. **Alpine Wintergreen**

SYNONYMS.—*Vaccinium humifusa* (Grah.) Rydb., *Gaultheria myrsinites* Hook.

OTHER COMMON NAMES.—Matted wintergreen, alpine spicy wintergreen.

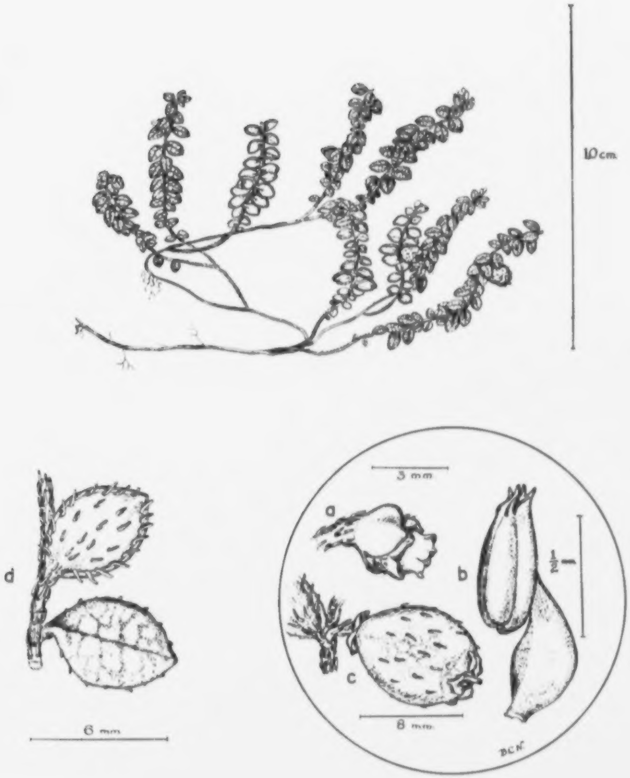
DESCRIPTION.—*Plant:* Prostrate or ascending, low shrub with trailing, glabrous, or finely puberulent stems, often forming mats. *Leaves:* Evergreen, ovate or oval to nearly elliptic up to 25 mm. long, obtuse or rounded at apex, glabrous, entire to inconspicuously crenulate or serrulate. *Flowers:* Solitary up to 4 mm. long in the leaf axils, on short peduncles, 5-merous, subtended by 3–5 bracts; calyx glabrous, toothed to near the middle; corolla pinkish, campanulate, 5-lobed, slightly exceeding the calyx; stamens with anthers opening by terminal pores, without awns; ovary superior. *Fruit:* Red, globose, fleshy, berry-like, up to 7 mm. in diameter.

HABITAT.—In mountains usually at or above the timber-line, on moist banks and wet meadows.

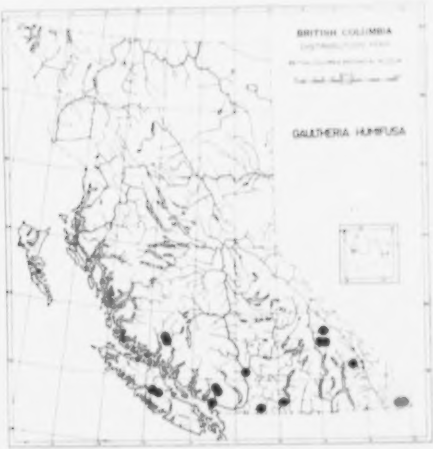
SEASON.—End of June to August.

RANGE.—Southern British Columbia and Alberta, south to Colorado and Northern California.

DISTRIBUTION IN BRITISH COLUMBIA.—Not very common and has its distribution pretty well restricted to the southern part of the Coast and southern portion of Southeast and Southwest Interior.


10cm
3 mm
a
b
1/2
d
c
6 mm
8 mm
BCN

Creeping snowberry (*Gaultheria hispidula* (L.) Muhl.)—*a*, single flower in early stage of development, showing subtended bracts; *b*, stamen; *c*, fruit; *d*, upper and lower surface of the leaf.

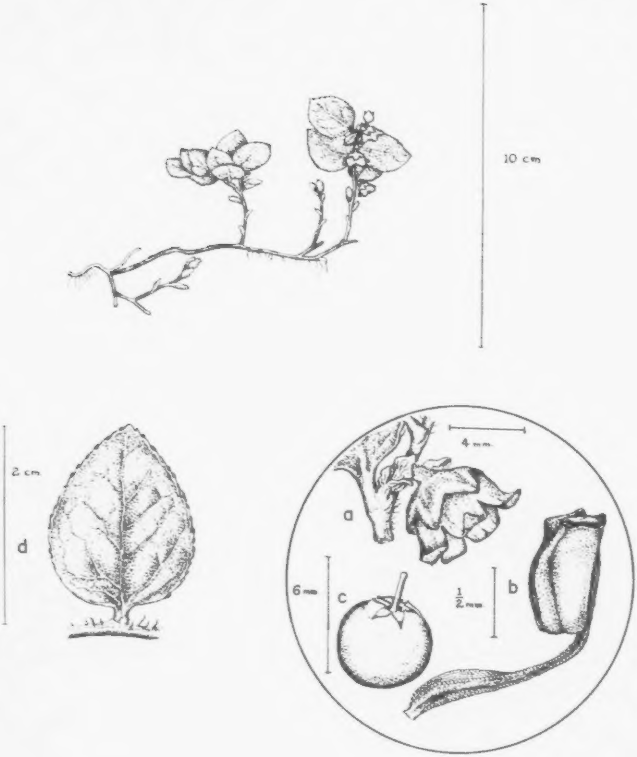


COMMENTS.—*Gaultheria humifusa* is quite similar to *G. ovalifolia,* both species being dwarf shrubs with solitary campanulate flowers in the upper axils, and in appearance they might quite easily be confused. The most dependable separating character is confined to the calyx, which in *G. humifusa* is glabrous while in *G. ovalifolia* it is unusually hairy. In addition, in the former the leaves are less than 2 cm. in length, while in the latter they are between 2 and 5 cm. in length. The layman might find some difficulty in separating these species, and therefore a close examination of the floral parts and foliage is recommended.

***Gaultheria ovalifolia* Gray** **Slender Wintergreen**

OTHER COMMON NAMES.—Oregon wintergreen, spicy wintergreen.

DESCRIPTION.—*Plant:* Low, evergreen, spreading shrub with procumbent stems and erect or ascending branches, pubescent with loosely spreading hairs. *Leaves:* Evergreen, very short petioled, ovate, acute, 2–4 cm. long, with thickened margin and distinctly serrulate. *Flowers:* Solitary, in the leaf axils, on short bracteate


10 cm
2 cm
d
4 mm
a
6 mm
c
½ mm
b

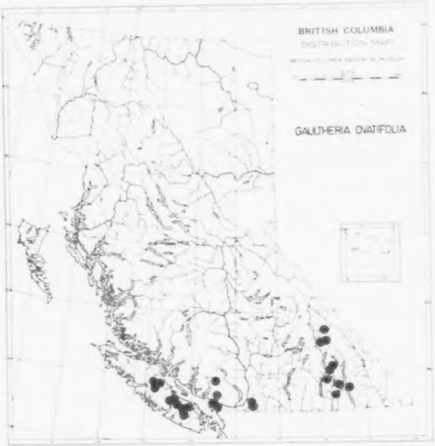
Alpine wintergreen (*Gaultheria humifusa* (Grah.) Rydb.)—*a*, single flower; *b*, stamen; *c*, fruit; *d*, leaf showing upper surface.

peduncles, 5-merous, up to 5 mm. long; calyx about 2 mm. long, brownish, pilose, 5-parted, the lobes exceeding the tube; corolla campanulate, white or pinkish, about twice the length of the calyx, up to 3.5 mm. long; anthers without awns, opening by terminal pores. *Fruit:* Scarlet, globose, berry-like, up to 7 mm. in diameter, spicy-flavoured.

HABITAT.—Coniferous forest, subalpine bogs.

SEASON.—June to August.

RANGE.—Southern British Columbia to Southern California west of the Cascades.



DISTRIBUTION IN BRITISH COLUMBIA.—Confined in its distribution to the southern part of the Province. It is particularly abundant in some areas on Vancouver Island, such as the Forbidden Plateau, Mount Arrowsmith, and Cowichan Lake. On the mainland it was collected near Vancouver at Mount Seymour and Garibaldi Park. From the Interior, known only at Skagit Valley, Hope–Princeton Highway, and in the Southeast Interior from the Kootenay and Arrow Lakes areas. The fact that *G. ovalifolia* is restricted to these three well-defined regions suggests that these areas are ecologically somewhat similar.

COMMENTS.—This attractive low spreading shrub can be used successfully in cultivation as a ground cover, especially in the southeastern part of our Province. For further comments, see *G. humifusa.*

Gaultheria shallon Pursh. **Salal**

DESCRIPTION.—*Plant:* Erect to partially prostrate, rigid, freely branched shrub with pilose to hirsute stems up to 2.5 m. tall, sometimes forming impenetrable thickets. *Leaves:* Evergreen, ovate to ovate-elliptic, usually abruptly short-acuminate, rounded or subcordate at the base, glabrous, on short petioles. *Flowers:* In terminal and subterminal, axillary, glandular, bracteate racemes, up to 15-flowered, one-sided by deflexion of the pedicels; calyx glandular-pilose, the lobes triangular-lanceolate, about half to one-third the length of the 5-lobed, campanulate-urceolate, glandular, white or pink corolla; filaments pubescent; anthers with 4 slender apical awns, opening by 2 rather large subterminal pores. *Fruit:* Glandular, hairy, nearly black, fleshy, berry-like.

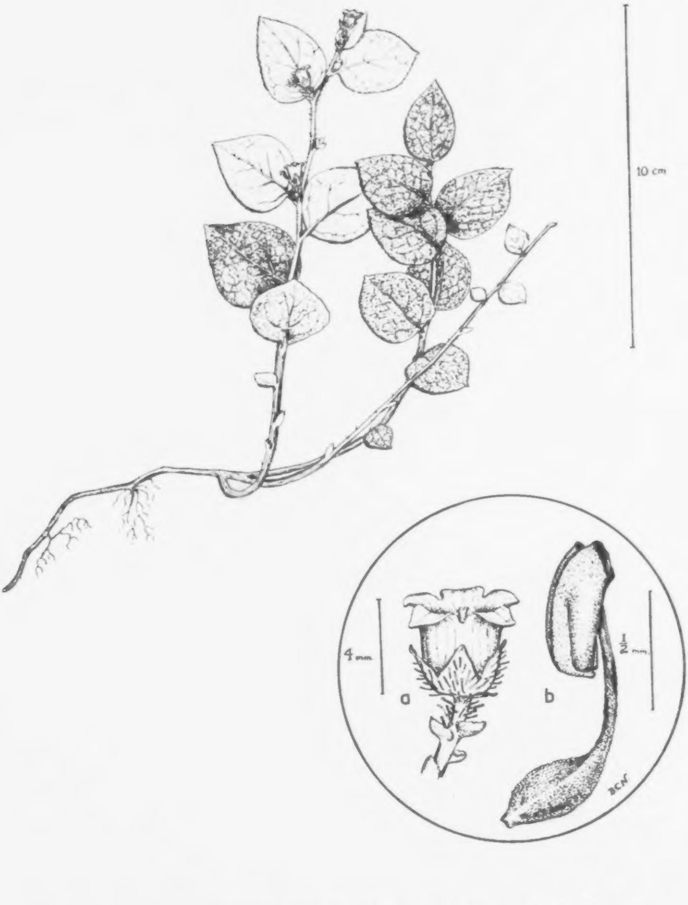
HABITAT.—Mostly coniferous forest, thickets, rocky cliffs, ravines, and exposed shores.

SEASON.—April to July.

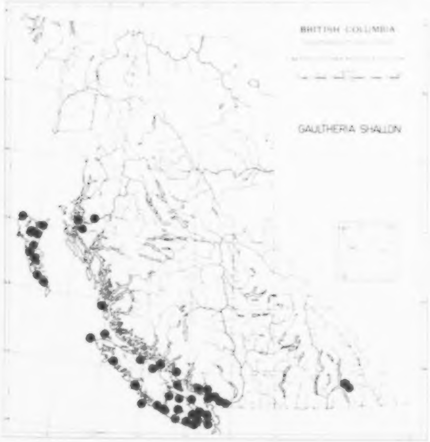
RANGE.—British Columbia to Southern California, mainly west of the Cascades.

DISTRIBUTION IN BRITISH COLUMBIA.—Restricted to the Coast and very abundant in many areas. From the distribution map it is obvious that salal follows the coast-line up to about the 55th parallel, where it is often the main floristic component. Additional records from the Kootenay Lake area can be explained by the fact that the environmental complex regulating its distribution has some similarity in these two areas.

COMMENTS.—Salal is the Coast Indian word for this shrub, the berries of which played an important role in their daily diet, being utilized in various ways; for example, the berries were made into a syrup or dried in cakes. Salal is so abundant on the Coast


10 cm
4 mm
a
b
½ mm
BCN

Slender wintergreen (*Gaultheria ovatifolia* Gray)—*a*, single flower; *b*, stamen.



and grows to such an extent that nearly all are familiar with it. It thrives best on the west coast of Vancouver Island and the Queen Charlottes, where it forms dense thickets reaching in height up to 2.5 m. or more. It is one of the choicest of our native broad-leafed evergreens.

The pinkish bell- or urn-shaped flowers, with terminal or axillary one-sided slender racemes, and berry-like, nearly black and edible fruit make this shrub one of the most important in the coastal forest. It is also noteworthy that the branches, with their shiny leathery leaves, are very handsome and have become widely used by the florist trade, particularly in Christmas decorations. Haskin (1934) says " that David Douglas, when he landed in Oregon in 1825, was so impressed by the sight of the salal that he could scarcely see anything else. Throughout all his journey in the west, the salal was one of Douglas' favorites and he held great hopes of introducing it into England, and making of it a cultivated fruit.

Douglas' hope of making a commercial fruit of the salal was never fulfilled, but in England and Europe salal became a well-known ornamental." From my experience I might add that the fruit is edible and pleasant in taste when ripe, and being so plentiful on the Coast should be placed high on the list of possible sources of food for those lost in the bush.

HEMITOMES A. GRAY (CONE PLANT)

The name of this genus comes from the Greek *hemitomes*, meaning half eunuch, as one of the anther-cells is often sterile. The common name, cone plant, refers to its habit, which resembles to some extent a cone, as the flowers are closely packed at the top of the plant.

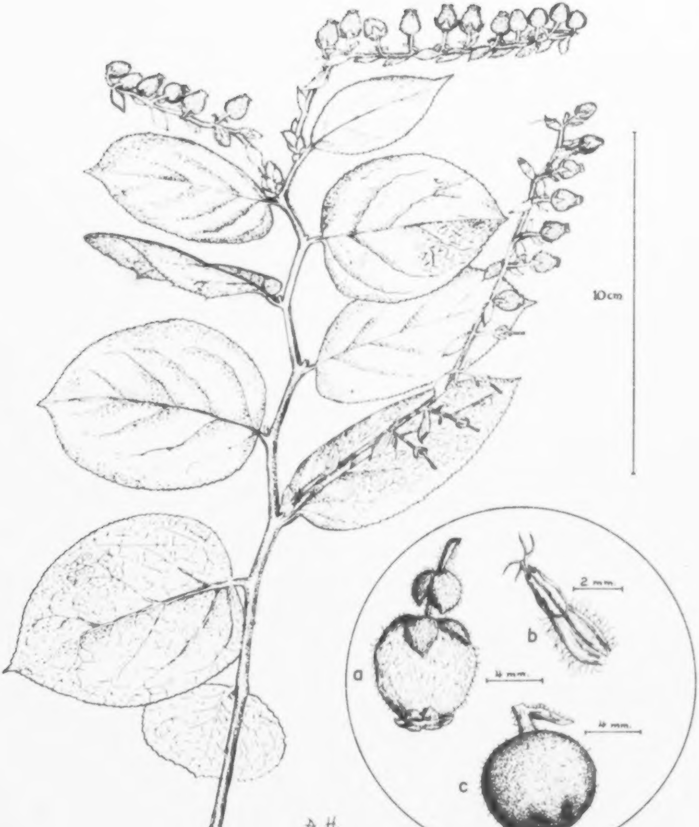
Plant waxy, whitish to fleshy-pink, turning yellowish to brown in age, with simple rather short stems, thin scale-like non-green leaves and flowers in a short dense head-like congested spike, subtended by broad bracts. Cone plant is saprophytic (growing on decomposing vegetable matter), and the stems arise from short fleshy roots. Individual flowers are tubular-campanulate, 1–2 cm. long, and comprised of 2 or 4 distinct narrow sepals; petals usually 4, membranaceous, connate over half their length; stamens 8, with hairy filaments and 2-celled oblong anthers, open by a longitudinal slit; ovary superior, 1-celled with short hairy style and depressed-capitate, slightly lobed stigma. Fruit berry-like, with fleshy outer layer, ovoid in shape.

Cone plant is one of the strangest and most interesting saprophytes, not only without green foliage, but entirely without chlorophyll.

A monotypic genus, restricted to the Pacific Coast region of North America.

Hemitomes congestum **A. Gray** **Cone Plant**

SYNONYMS.—*Newberrya congesta* Torr. ex A. Gray, *Newberrya spicata* A. Gray, *Hemitomes spicatum* Heller, *Hemitomes pumilum* Green, *Newberrya pumila* Small, *Newberrya subterranea* Eastw., *Newberrya longiloba* Small.


10cm
2 mm.
b
a
4 mm.
4 mm.
c
A. H.

Salal (*Gaultheria shallon* Pursh.)—*a*, single flower; *b*, stamen; *c*, fruit.

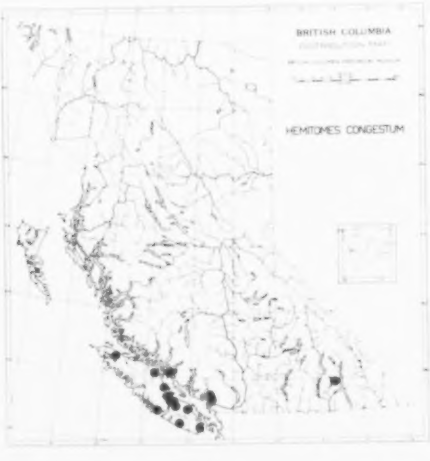
OTHER COMMON NAME.—Gnome plant.

DESCRIPTION.—*Plant:* Up to 15 cm. high, saprophytic, waxy, pinkish when fresh, drying to brownish; stem rather stout, simple, arising from fleshy, short root-stock. *Leaves:* Scale-like, imbricated, thin, oval to oblong, erose and irregularly ciliate, entirely without chlorphyll. *Flowers:* Bracteate, in terminal, short, head-like compressed spike; calyx and corolla similar in colour and texture; sepals 2–4, distinct, oblong, and about 15 mm. long; corolla tubular-campanulate; petals usually 4, connate over half of their length and often unequally lobed; stamens usually 8; filaments, hairy; anthers 2-celled linear, dehiscing by a longitudinal slit. *Fruit:* Ovoid hairy capsule.

HABITAT.—Coastal coniferous forest in rich humus soil.

SEASON.—June to August.

RANGE.—British Columbia, south along the coast to California.



DISTRIBUTION IN BRITISH COLUMBIA.—Rather rare. Most common on Vancouver Island. On the mainland collected at Grouse Mountain. The only Interior record of this species comes from New Denver in the Kootenay Valley, where it was collected by W. Ziller (1958).

COMMENTS.—A rare saprophytic plant, readily recognized by the crowded or congested nature of the flower, which accounts for the common and specific names. It is a stocky, simple-stemmed, fleshy-white to faint pink plant found only in rather shady, dampish coniferous forests.

HYPOPITYS HILL (PINESAP)

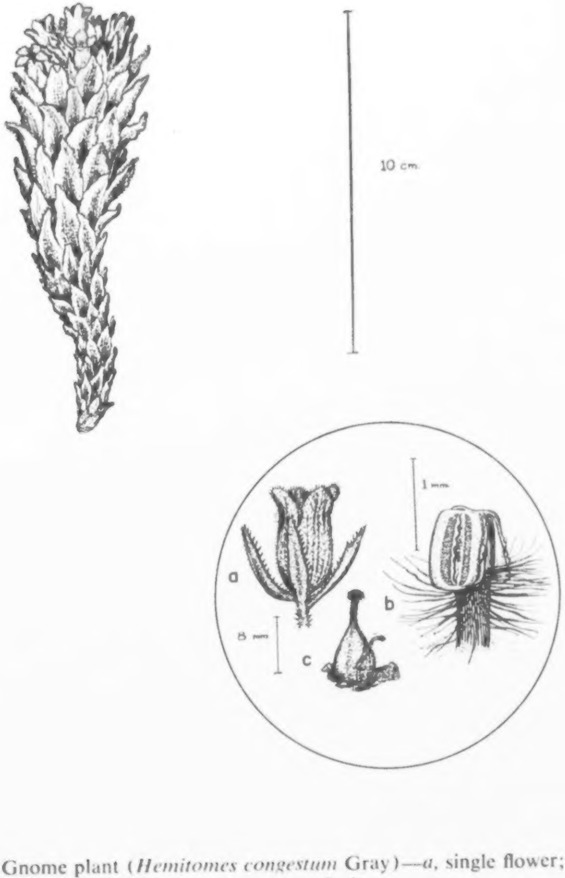
The name of this genus comes from the Greek *hypo* (beneath) and *pitys* (pine-tree), referring to the preferred habitat of this group of plants.

Fleshy saprophytes varying in colour from white to yellowish or pinkish with scale-like, non-green leaves and unbranched stems, arising from a dense mass of fleshy roots. Flowers axillary in terminal bracted raceme, which nods before and during anthesis, and is erect in fruit. When the stem emerges from the ground, the raceme is bent to one side, and the buds or flowers are crowded and pendant. The lateral flowers, which stand in the axils of bracts whose margins vary from entire to lacerate, usually have 4 oblanceolate sepals, the same number of distinct petals with saccate bases, alternating with the sepals and usually hairy on both surfaces. Stamens usually 8, with hairy filaments and ovoid anthers, opening by a slit across the top. Ovary superior, 3–5-celled. Fruit a capsule with non-lignified outer layer.

A genus of three species of the north temperate region of North America and Eurasia. One species is credited to British Columbia.

Hypopitys monotropa **Crantz.** **Pinesap**

SYNONYMS. — *Hypopitys hypopitys* L., *Hypopitys hypopitys* Small, *Monotropa lanuginosa* Michx., *Hypopitys lanuginosa* Nutt., *Hypopitys europea* Nutt., *Hypopitys multiflora* var. *americana* DC., *Hypopitys americana* Small, *Monotropa hypopitys* var. *americana* Domin., *Monotropa fimbriata* Gray, *Hypopitys fimbriata* Howell, *Hypopitys latisguana* Rydb., *Monotropa hypopitys* var. *latisguana* Kearney & Peebles, *Monotropa latisguana* Hulten, *Hypopitys brevis* Small.


10 cm.
1 mm
a
b
8 mm
c

Gnome plant (*Hemitomes congestum* Gray)—*a*, single flower; *b*, stamen; *c*, fruit.

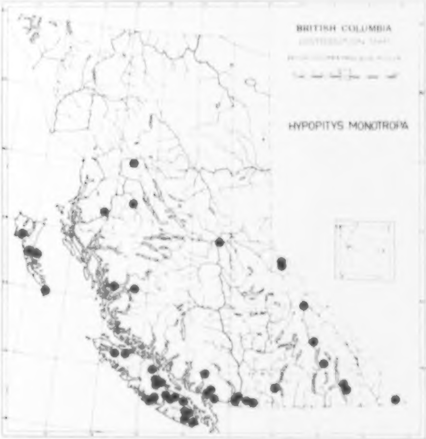
Other Common Name.—American pinesap.

Description.—*Plant:* Up to 30 cm. tall, unbranched, saprophytic, fleshy, yellowish or pinkish drying to black, usually pubescent, arising from a dense mass of fleshy roots. *Leaves:* Entire to fimbriate, scale-like, lanceolate to linear-lanceolate, thick, crowded near the base of the stem. *Flower:* Axillary, in terminal bracteated raceme, nodding before and during anthesis, and erect in fruit; terminal flowers largest and usually with 5 petals, the lower ones mostly with 4 petals; sepals up to 9 mm. long; petals much longer, erect, overlapping one another, usually hairy on one or both sides; stamens shorter than the petals, with hairy filaments and ovoid anthers opening by a slit into two unequal valves. *Fruit:* Subglobose capsule up to 10 mm. long.

Habitat.—Rich humus in coniferous forests.

Season.—June to July.

Range.—British Columbia, east to the Atlantic Coast, south along the coast to California. Europe.



DISTRIBUTION IN BRITISH COLUMBIA.—Limited to the southern part of the Coast and Southern Interior, where it is quite abundant locally, particularly on Vancouver Island; collected occasionally in the Central Interior and once in the Northern Interior in the Driftwood Valley at Tetana Lake, by Stanwell-Fletcher (1941), this being the most northern record known for *Hypopitys monotropa* in our Province. As a rule it does not occur north of latitude 56° in its distribution.

COMMENTS.—In general appearance, pinesap is very much like Indian pipe but differs from it by having few to several flowers at the summit of the stem, arranged in a one-sided raceme. It grows up to 1 foot high in moist and deep humus of coniferous forests. There is noticeable variation in our material, and according to Hulten (1948) our plant is entirely different from the European one and should be called *Hypopitys fimbriata* (Gray) Howell. On the other hand, many others hold the view that our plants are not sufficiently different to be separated from the European ones, even varietally. The author agrees with this view.

KALMIA L. (LAUREL)

This genus was named after a Swedish naturalist, a student of Linnæus, Peter Kalm (1715–79). The common name laurel has been applied to a number of unrelated plants; the laurel, with which the heroes of classical antiquity were crowned, was a species of *Laurus* known as true laurel or sweet bay, which belongs to the Laurel family *Lauraceæ*.

Rather low, evergreen, erect branching shrubs with alternate to whorled leathery leaves, dark green above, pallid beneath, entire, and generally more or less revolute. Flowers in terminal or lateral, corymbose or umbellate clusters, with slender elongated pedicels. Calyx 5-parted, small, persistent, with the segments imbricated in the bud and usually coloured. Corolla gamopetalous, saucer-shaped or broad campanulate with lobes broad, rounded at apex. Stamens 10, with slender filaments and anthers opening by apical pores, held back in little pouches and springing up suddenly by the straightening of the slender filaments when the corolla expands or if touched. Ovary superior, 5-celled, style slender, straight. Fruit a small, globose or subglobose 5-valved septicidal capsule, with numerous minute seeds. The genus is represented in North America by about six species. Only one occurs in British Columbia.

***Kalmia polifolia* Wang.** **Swamp Laurel**

SYNONYMS.—(*Kalmia glauca* L'Herit ex Ait.) = var. *polifolia* (*Kalmia glauca* var. *rosmarinifolia*) Pursh. = var. *polifolia, Kalmia glauca* var. *microphylla* Hook., *Kalmia microphylla* Heller, *Kalmia polifolia* var. *microphylla* Rehd., *Kalmia occidentalis* Small, *Kalmia polifolia* subsp. *occidentalis* (Small) Abrams.

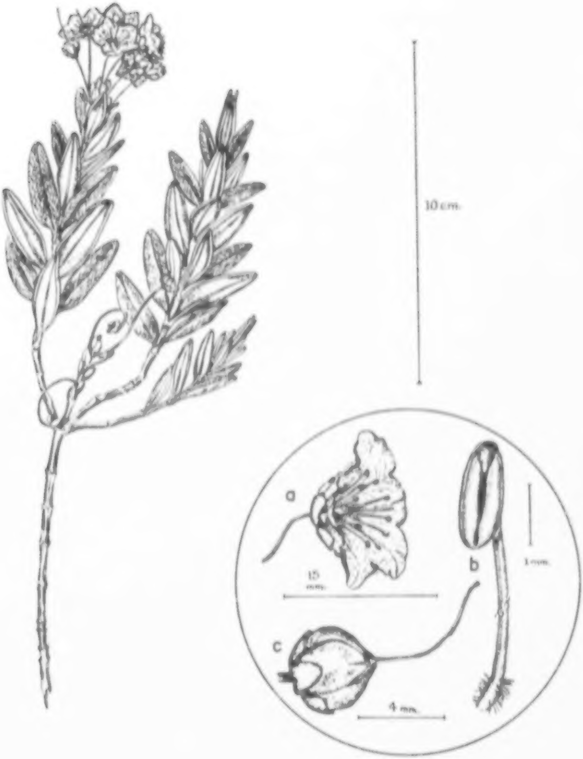
OTHER COMMON NAMES.—American laurel, western swamp laurel, western kalmia, pale laurel, western swamp kalmia.

DESCRIPTION.—*Plant:* Evergreen shrub, slender, branched, spreading by layering and often matted, up to 50 cm. tall. *Leaves:* Up to 4 cm. long, opposite, sessile or nearly so, firm, lanceolate or linear, dark green and glabrous above, conspicuously whitish and very finely and densely granular-puberulent beneath, entire, often revolute with prominent midrib beneath. *Flowers:* In terminal several-flowered corymbs, deep pinkish-rose, up to 2 cm. broad; bracts, like leaves but smaller; pedicels very slender, up to 4 cm. long, usually glabrous, loosely ascending, erect in fruit; calyx deeply 5-lobed, with ovate sepals up to 3 mm. long and sometimes sparsely ciliolate, otherwise glabrous; corolla gamopetalous, saucer-shaped with 5 broad rounded lobes and 10 pronounced sacs in which the anthers are recessed in the buds and from which they spring as the flower opens; filaments 10, hairy only above the base; anthers narrowly oblong, dehiscent full length. *Fruit:* Subglobose, glabrous 5-valved capsule about 4 mm. broad and 5 mm. long.

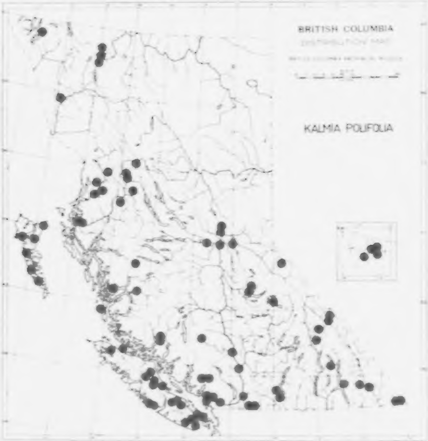
HABITAT.—Peat bogs, peaty soil, muskeg, and mountain meadows.

SEASON.—May to September.

RANGE.—Alaska, Yukon, British Columbia, across the continent in northern Canada, south to California, Nevada, and Colorado.


10 cm.
a
b
c
10 mm.
1 mm.
4 mm.

Swamp laurel (*Kalmia polifolia* Wang.)—*a*, single flower; *b*, stamen; *c*, fruit.



Distribution in British Columbia.—Widely spread and common throughout the Province, with the exception of the North-east. Particularly common on the Coast, Vancouver Island, and the Queen Charlotte Islands.

Comments.—Two varieties occur in the Province: (*a*) var. *polifolia* being usually a much larger shrub up to 3 or more dcm. tall with much larger leaves, 2–4 cm. long, less than half as broad and strongly revolute, with flowers up to 2 cm. broad; (*b*) var. *microphylla* (Hook.) Rehd., which is a much smaller plant not over 15 cm. tall, having leaves usually up to 2 cm. long, less than half as broad and flowers smaller, not exceeding 12 mm. broad. Var. *microphylla* occurs more commonly on higher elevations and is considered to be an alpine form of the species.

A delightful shrub for wet acid gardens, and when in bloom a showy shrub. The flowers are of very interesting construction. They are 5-lobed, saucer-shaped, and have 10 shallow pockets, in which the anthers of 10 stamens are caught. An insect alighting upon the floral cup jars the stamens from their retaining pouches and, like a spring, they snap quickly forward, powdering the insect with pollen. This plant has the reputation of being poisonous to live stock, especially to sheep. The toxic substance in *Kalmia* is andromedotoxin, which is thought to be the active toxic principle in most poisonous members of the Heath Family.

LEDUM L. (LABRADOR TEA)

The name of this genus comes from the Greek word *ledon*, the ancient name for the plant now known as *Cistus ledon*.

Erect or diffuse shrubs, freely branched with resinous fragrant foliage, not more than 1 m. tall. Leaves alternate, sessile or short-petioled, entire, leathery, and persistent. Flowers, many, in terminal racemes or corymbs from large scaly buds, the new growth of the season originating at the base of the flower clusters. Perianth 5-merous; calyx very small, divided nearly to the base; petals distinct to the base, white or tinged with pink; stamens 10 (5–12), with slender filaments; anthers oblong-oval, unawned, opening by small round pores; ovary 5-celled with elongate and persistent style. Fruit a capsule, opening by 5 valves from the base; seeds minute, elongate and winged.

A genus of four species, native of the north temperate and subarctic regions.

All species have been reported as having a poisoning effect when browsed by animals, especially by sheep. As far as is known, the toxic principle appears to be andromedotoxin. Since most of these plants have rather tough and bitter leaves, animals seldom eat them if more palatable forage is available.

A. Lower surface of leaves pale greenish not tomentose ...... *L. glandulosum*

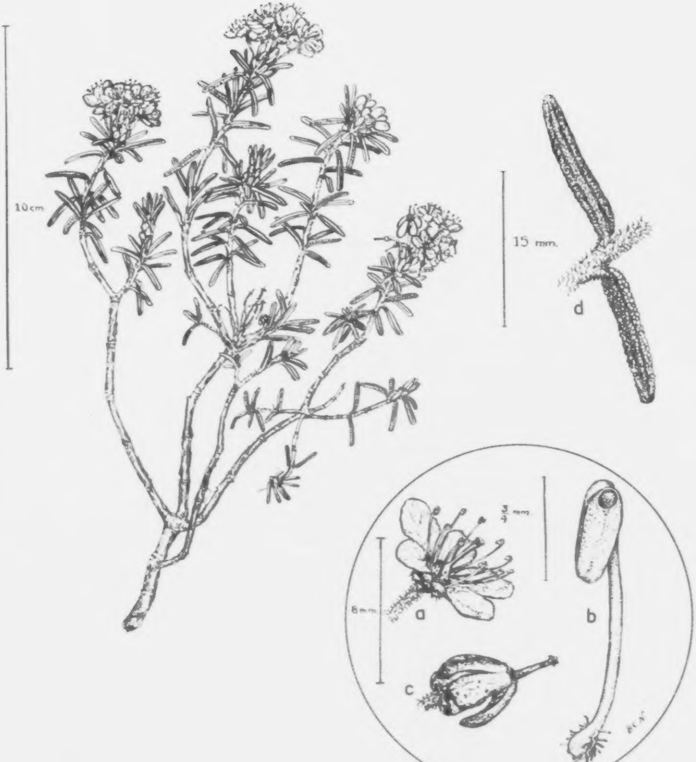
AA. Lower surface of leaves densely rusty-tomentose beneath.

Leaves elliptic to oblong, 2–5 cm. long; stamens, 5–7, their filaments mostly glabrous ...... *L. groenlandicum*

Leaves linear, up to 1.5 cm. long; stamens, usually 10, their filaments pubescent below the middle ...... *L. decumbens*

Ledum decumbens **(Ait.) Lodd.** **Northern Labrador Tea**

SYNONYMS.—*Ledum palustre* var. *decumbens* Ait., *Ledum palustre* var. *angustifolium* Herder, *Ledum palustre* subsp. *decumbens* (Ait.) Hult.


10cm
15 mm.
d
3/4 mm
8mm
a
b
c

Northern labrador tea (*Ledum decumbens* (Ait.) Lodd.)—*a*, single flower; *b*, stamen; *c*, fruit; *d*, leaves enlarged.

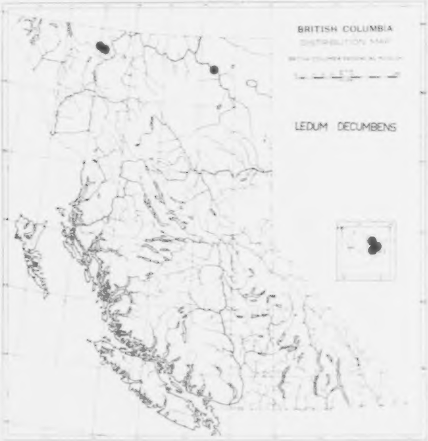
OTHER COMMON NAME.—Narrow-leaved labrador tea.

DESCRIPTION.—Similar to *Ledum groenlandicum* and the separating characters are confined mostly to the size of shrub, which in this species is much smaller (10–50 cm.), being more decumbent; leaves linear, which very seldom exceed 25 mm. in length and 3 mm. in width; stamens in most cases 10 in number, having filaments pubescent below the middle and much smaller fruit (capsule), only 3–4 mm. long. Other characters as in *Ledum groenlandicum.*

HABITAT.—Limited to cold muskegs and bogs in lowland and alpine situations within its range.

SEASON.—June to August.

RANGE.—Alaska, Yukon, through Northwest Territories to Labrador and Newfoundland and west Greenland, south to British Columbia, northern Manitoba. Eurasia.



DISTRIBUTION IN BRITISH COLUMBIA.—Known only from a few localities north of 58° north, being most abundant in Haines Cutoff area. Limited distribution does not necessarily mean rarity.

This species has been poorly collected and perhaps overlooked and in many cases classified as *L. groenlandicum.* Undoubedtly this plant will be recorded from more localities in the future.

COMMENTS.—*Ledum decumbens* and *Ledum groenlandicum* are quite closely related to *Ledum palustre* L.; Hulten (1948) prefers to regard both of them as geographical races (subsp. of *L. palustre*). Undoubtedly there is a variation within these three populations and the relationship between them is still unclear.

Ledum glandulosum **Nutt.** **Glandular Labrador Tea**

SYNONYM.—*Ledum californicum* Kell.

OTHER COMMON NAMES.—Trapper's tea, coastal labrador tea, western labrador tea.

DESCRIPTION.—*Plant:* Stout, erect shrub, 0.5–1.5 m. tall, with twigs puberulent and minutely glandular. *Leaves:* Petiolate, elliptic to oval, up to 5 cm. long, green and rugose above, whitish-puberulent and resinous-granuliferous beneath, more or less revolute. *Flowers:* White, in terminal raceme; pedicels up to 2 cm. long, puberulent and usually glandular; sepals ciliate on the margins; petals oblong, up to 8 mm. long; stamens 8–12 (usually 10), considerably longer than the style, densely hairy below the middle. *Fruit:* Capsule, about 5 mm. long, globose to ovoid, puberulent and glandular.

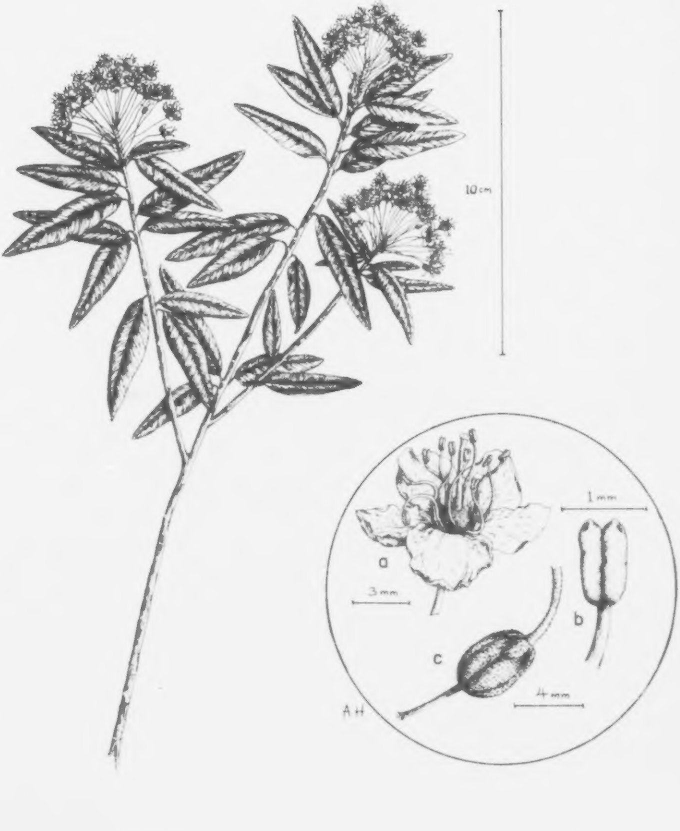
HABITAT.—Wet mountain meadows and wet open woods on higher elevations.

SEASON.—June to August.

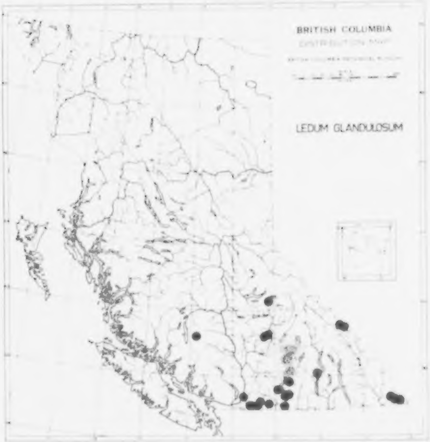
RANGE.—British Columbia to California, eastward to the Rocky Mountains and southward to Wyoming; also in Idaho and Oregon.

DISTRIBUTION IN BRITISH COLUMBIA.—Restricted to the Southwest and Southeast Interior, where it is quite abundant locally and well defined in its distribution.

COMMENTS.—Glandular labrador tea is easily separated from other species, having leaves which are green and rugose above, pale greenish and densely glandular beneath. The leaves in other species are densely rusty-tomentose beneath. Young twigs are finely pubescent and glandular-dotted. Of apparent geographic significance is


10 cm
a
3 mm
1 mm
b
c
4 mm
AH

Glandular labrador tea (*Ledum glandulosum* Nutt.)—*a*, single flower; *b*, stamen; *c*, fruit.



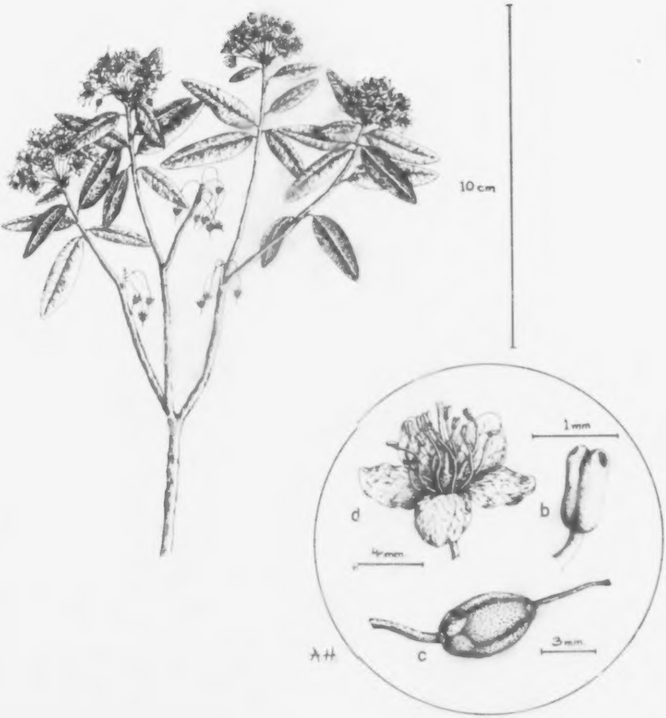
var. *columbianum* (Piere) C. L. Hitchc. (*L. columbianum* Piper), characterized by strongly revolute, narrow leaves, 3–5 cm. long and less than 1 cm. in width. This variety is rare with us, and the only specimen I have seen came from Vancouver, collected by J. K. Henry (1901). This record seems to be outside its range. The typical form, var. *glandulosum*, is rather a mountain plant and differs from var. *columbianum* by having entire or only slightly revolute leaves, about half as broad as they are long, and a distinctly globose capsule.

Ledum groenlandicum **Oeder** **Labrador Tea**

SYNONYMS.—*Ledum palustre* ssp. *groenlandicum* Hulten, *Ledum pacificum* Small, *Ledum palustre* var. *dilatatum* Gray, *Ledum latifolium* Ait.

OTHER COMMON NAME.—Common labrador tea.

DESCRIPTION.—*Plant:* Erect shrub up to 1 m. tall, with densely rusty villose-tomentose twigs. *Leaves:* Short-petioled, linear to elliptic, up to 6 cm. long, leathery, deep green, glabrous and somewhat reddish-lanate above, densely rusty-tomentose beneath with


10 cm
1 mm
d
b
4 mm
AH
c
3 mm

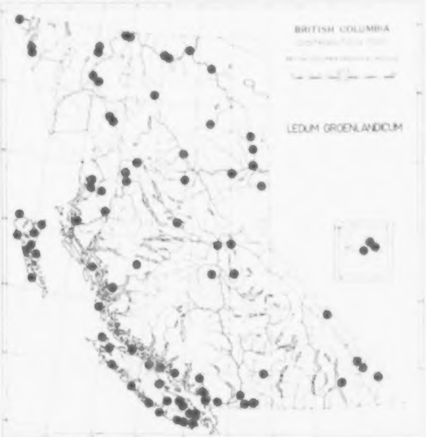
Labrador tea (*Ledum groenlandicum* Oeder.)—*a*, single flower; *b*, anther; *c*, fruit.

distinctly revolute margins. *Flowers:* White, about 1 cm. broad in terminal umbel-like clusters from large scaly buds; pedicels and bracts finely puberulent and glandular; sepals very short; petals spreading, 5–8 mm. long, oblong, rounded at the apex and narrowed at the base; stamens 5–10; filaments glabrous or sometimes pubescent at base, slightly exceeding the style; styles up to 6 mm. long, nearly straight. *Fruit:* Capsule narrowly ovoid, puberulent, up to 7 mm. long.

HABITAT.—Common in muskeg, swamps, bogs, and moist coniferous woods, on wet, acid mountain meadows in the north.

SEASON.—May to August.

RANGE.—Boreal zones; Alaska to Greenland, south to New England; in the west along the coast to northwest Oregon.



DISTRIBUTION IN BRITISH COLUMBIA.—One of our most common and most widespread members of the Heather Family, distributed throughout the Province in suitable habitat. Often occurs in profusion to form distinct communities.

COMMENTS.—This is the commonest species in British Columbia and well known. It is easy to distinguish from others with its leaves dark green above, densely covered with light- to dark-brown wool beneath (lanate). The leaves are oblong in outline with the margins rolled in. When crushed in the hand, they release a rather pleasant fragrance. The flowers, which appear on the end of the twigs, are white in short umbel-like clusters.

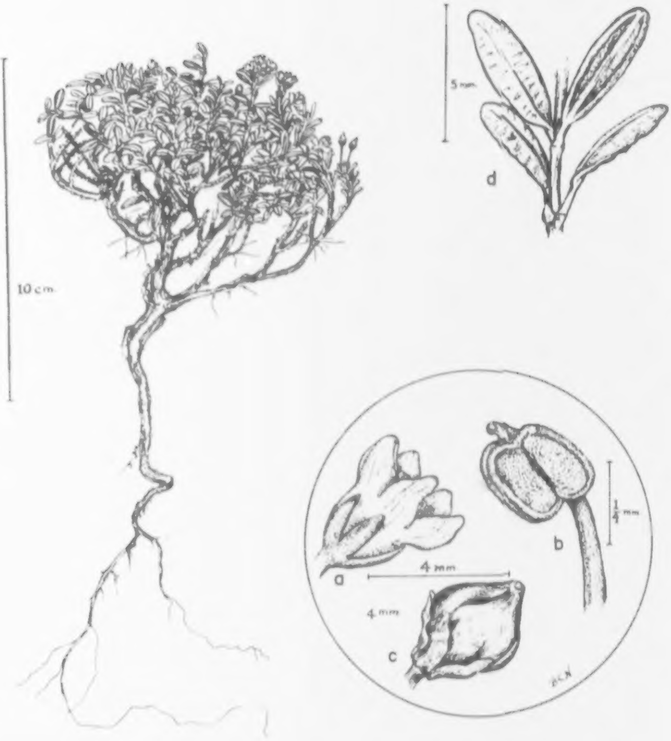
Because of its strongly aromatic fragrance, for centuries many various uses were made of this plant; for example, it was laid among corn in barns to drive away mice, kept in bedrooms to disperse fleas and in closets to keep away moths. One of the most common uses was for making tea, and it gained considerable reputation as a substitute for conventional tea. This tea was well known during the revolutionary war in the United States, and still is widely used by Ainu and Eskimos and other inhabitants of the Arctic. I collected some several times and brewed it after having dried the leaves. The tea has a strong aroma, and to my taste reminds me very much of green tea. In my opinion it could be enjoyed if taken in small quantities with a few drops of lemon added. The related species, *L. glandulosum*, is not suitable for making a beverage, and it is believed to have some poisonous effects.

LOISELEURIA DESV. (ALPINE AZALEA)

This genus was named after a prominent French botanist and physician, Jean Louis Auguste Loiseleur-Deslongchamps (1774–1849). Evergreen, small, smooth creeping, much branched and tufted circumpolar shrub. Leaves opposite, short-petioled, elliptical, entire, revolute-margined, coriaceous and usually crowded. Flowers few, 5-merous in terminal clusters, short-pedicelled; calyx 5-parted; corolla pink or whitish, broad campanulate, with spreading ovate lobes about as long as tube; stamens 5, shorter than corolla and glabrous; anthers opening lengthwise by slit. Fruit ovoid capsule, 2–3-celled, septicidal surrounded by the persistent calyx; seeds many. One circumpolar species.

***Loiseleuria procumbens* (L.) Desv.** **Alpine Azalea**

SYNONYMS.—*Azalea procumbens* L., *Chamæcistus procumbens* Britt. & Rydb.


5 mm
d
10 cm
1/4 mm
b
a
4 mm
4 mm
c
BCN

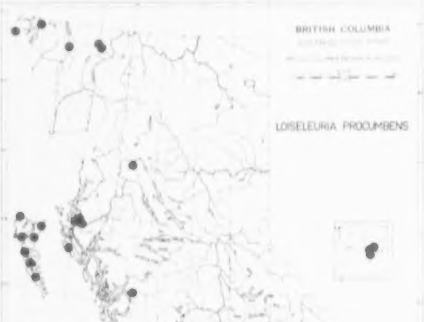
Alpine azalea (*Loiseuleuria procumbens* (L.) Desv.)—*a*, single flower; *b*, stamen; *c*, fruit; *d*, enlarged leaves.

Other Common Names.—Trailing azalea, loiseleuria.

Description.—*Plant:* A small depressed, circumpolar, much-branched, glabrous and tufted shrub with minute buds with indistinct scales, up to 20 cm. high. *Leaves:* Mostly opposite, small, crowded, short-petioled, obtuse, revolute, often glaucous beneath with prominent midrib, coriaceous, oblong, up to 8 mm. long. *Flowers:* Few in terminal clusters, short-pedicelled, 5-merous; calyx lobes ovate-lanceolate, reddish, about half as long as corolla; corolla broad, campanulate, pink, paler inside with spreading ovate lobes up to 5 mm. long; stamens 5, shorter than corolla, not declined and glabrous; anthers opening lengthwise by slit. *Fruit:* Ovoid capsule 2–3-celled, septicidal, and about 4 mm. across.

Habitat.—Alpine and arctic tundra, gravelly slopes in higher mountains, sandy barrens and peaty soils on the Coast.

Season.—May to July.



Range.—Alaska to Greenland, south to Maine, New Hampshire, and New York; in the west, south to British Columbia. Also in Eurasia.

DISTRIBUTION IN BRITISH COLUMBIA.—Coastal, with only a few scattered localities in the Northern Interior. Locally very abundant, particularly near Prince Rupert, the Queen Charlotte Islands, and Haines Cut-off. A few localities are known from Vancouver Island, as indicated on the distribution map.

COMMENTS.—Alpine azalea is an attractive small creeping evergreen with pink or whitish widely campanulate corolla, adaptable to rock gardens for compact coverage. Alpine azalea is easily identified by the leaves, which are shortly petiolate, elliptical, entire, coriaceous, and crowded.

MENZIESIA SMITH (FALSE AZALEA)

The genus was named in honour of Archibald Menzies (1754–1842), physician and naturalist, who accompanied the Captain Vancouver expedition of 1790–95.

Deciduous shrub with erect or spreading branches. Leaves alternate, short-petioled, light green, and thin. Flowers in terminal clusters, appearing with the leaves having perianth 4- or 5-merous and calyx saucer-shaped, persistent, glandular-ciliate. Corolla gamopetalous, urceolate-tubular to campanulate, shallowly-lobed. Stamens 8 (in our species) or 5 to 10 (in others), included. Anthers linear, unawned, opening by terminal pores. Ovary superior, 4-celled. Fruit septicidal capsule; seeds numerous.

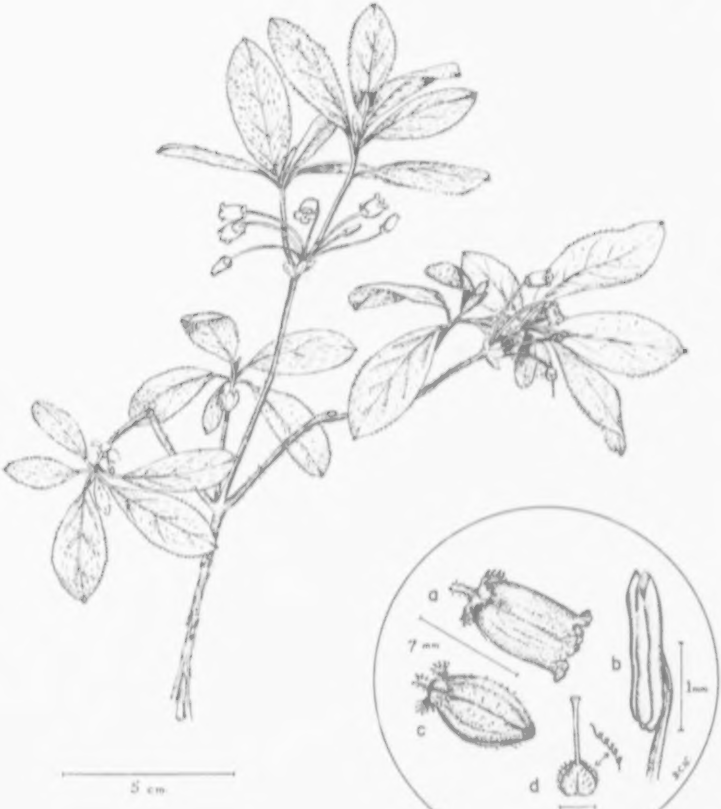
About six species in North America and Asia. One species is present in British Columbia.

***Menziesia ferruginea* Smith** **False Azalea**

SYNONYMS.—*Menziesia urceolaris* Salisb., *Menziesia globularis* Hook., *Menziesia glabella* Gray.

OTHER COMMON NAMES.—Pacific menziesia, Fool's Huckleberry.

DESCRIPTION.—*Plant:* An erect shrub up to 2 m. tall with young twigs finely pubescent, somewhat glandular-pilose, and older branches with loosely shredding bark or glabrous. *Leaves:* Thin, light green, usually glandular-pubescent, oblong to elliptic or obovate, crenulate-serrulate and ciliate on the margin, up to 6 cm.


a
7 mm
b
1 mm
c
d
2 mm
5 cm

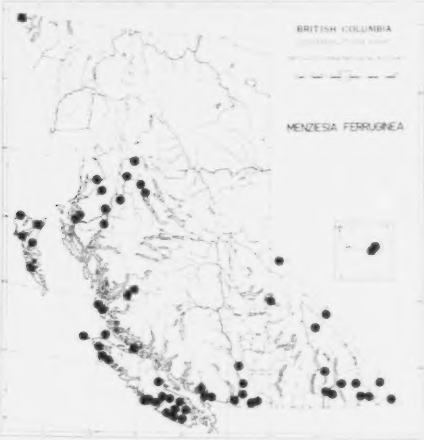
False azalea (*Menziesia ferruginea* Smith)—*a*, single flower; *b*, anther; *c*, fruit; *d*, enlarged ovary.

long; pedicels up to 2 cm. long, glandular-pilose. *Flowers:* In terminal clusters on shoots of the previous year, appearing with the leaves, 4-merous; calyx small, glandular-ciliate; corolla cylindric-urceolate, yellowish tinged with red, up to 1 cm. long; filaments glabrous to sparsely hairy near the base; anthers linear, unawned, opening by terminal pores; ovary 4-celled, globose. *Fruit:* Ovoid, septicidal capsule, rather thin-walled, up to 8 mm. long.

HABITAT.—Shady woods, moist slopes, stream banks.

SEASON.—May to July.

RANGE.—Alaska, British Columbia, south along the coast to Northern California; var. *glabella,* British Columbia, Alberta, to Wyoming, westward to eastern Washington and Oregon.



DISTRIBUTION IN BRITSH COLUMBIA.—Abundant on the Coast in suitable habitat. Quite common in the Southern Interior, with a few scattered localities in the Northern Interior and practically absent in the Central Interior. Not known from the Northeast of the Province.

COMMENTS.—The generally recognized var. *glabella* (Gray) Peck differs from the typical form var. *ferruginea* in that the leaves are more rounded than acute, finely puberulent on both sides, and less glandular beneath; branches are finely puberulent and less conspicuously glandular; calyx usually puberulent as well as glandular-pilose and ovary always finely puberulent. (Ovary in typical form var. *ferruginea* is glandular but not puberulent.) Var. *glabella* is not very common in British Columbia and is restricted only to the Southeast Interior, where it is quite abundant locally. Var. *ferruginea* is a common shrub in the Coast Mountains, and where moist conditions prevail, it often dominates the shrub layer in shady forests.

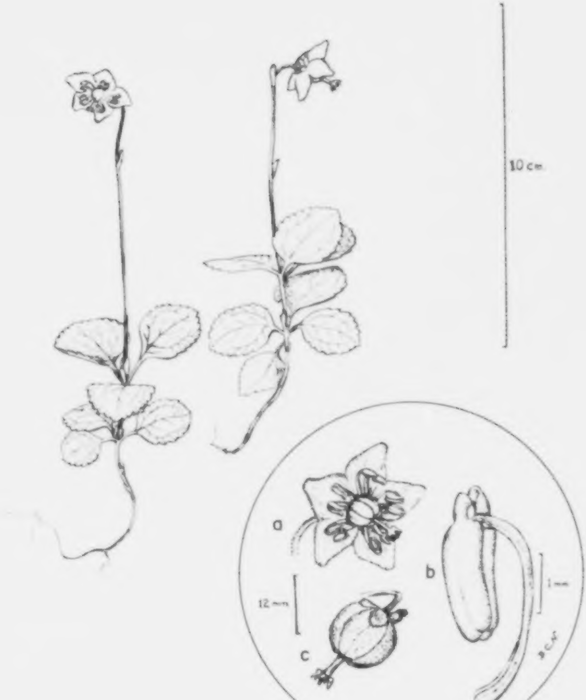
The common name false azalea is in reference to its habit, in particular the leaves, which to some extent bear a resemblance to those of the azalea. This is a rather desirable and interesting ornamental.

MONESES SALISB. (ONE-FLOWERED WINTERGREEN)

The name of this genus comes from the Greek *monos* (single) and *hesia* (delight), alluding to the attractive solitary flower and well suited to this handsome plant.

Rather delicate, evergreen, up to 15 cm. tall, glabrous herb from a very slender rhizome. Leaves opposite or mostly in threes in a whorl, petioled, rather thin and obscurely veined. Flower white and solitary, terminal, nodding; sepals 5, persistent; petals 5, orbicular and widely spreading. Stamens 10; filaments subulate; anthers as in *Pyrola*, but conspicuously 2-awned, ovary subglobose, 5-celled with elongate style and peltate, bearing 5 erect marginal lobes. Fruit a dry capsule opening from the summit downwards. Seeds numerous, minute.

A monotypic genus of the cooler parts of the northern hemisphere, with style resembling that of *Pyrola* and fruit dehiscing as in *Chimpahila*. Some taxonomists classify it with *Pyrola*, others regard it as comprising a separate genus. This is a matter of preference, as this plant might be considered as an intermediate between these two genera.


10 cm
a
b
1 mm
12 mm
c

Moneses (*Moneses uniflora* (L.) A. Gray)—*a*, single flower; *b*, stamen; *c*, fruit.

Moneses uniflora (L.) A. Gray Moneses

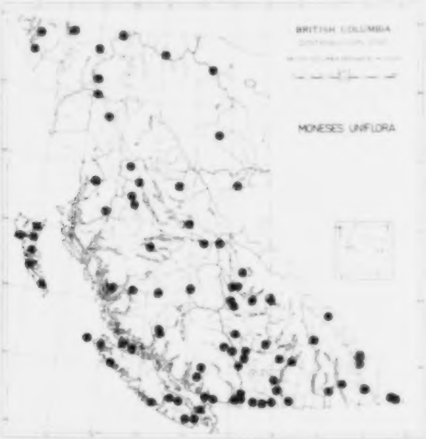
SYNONYMS.—*Pyrola uniflora* L., *Moneses grandiflora* S. F. Gray, *Moneses reticulata* Nutt., *Moneses uniflora* var. *reticulata* (Nutt.) Blake.

OTHER COMMON NAMES.—One-flowered wintergreen, one-flowered pyrola, single beauty.

DESCRIPTION.—*Plant:* A delicate herb from a very slender rhizome with the scapes up to 15 cm. tall. *Leaves:* Suborbicular, up to 2 cm. long, finely serrulate, crenulate, or sub-entire, with petioles half as long to nearly equal in length. *Flower:* Single and terminal, on scapes usually with 1 or sometimes 2 bracts about middle length; sepals 5, up to 3 mm. long, thin and whitish, ciliolate on the margin; petals 5, waxy-white or pinkish, reflexed, ovate, up to 1 cm. long; stamens 10, their filaments dilated at base; anthers with the tubes strongly curved. *Fruit:* Globose or subglobose capsule up to 8 mm. broad.

HABITAT.—Damp woods and bogs, often on rotting wood in shady coniferous forest.

SEASON.—June to August.



RANGE.—From Alaska across the continent to Greenland, south as far as Pennsylvania; in the west to California and Idaho. Eurasia.

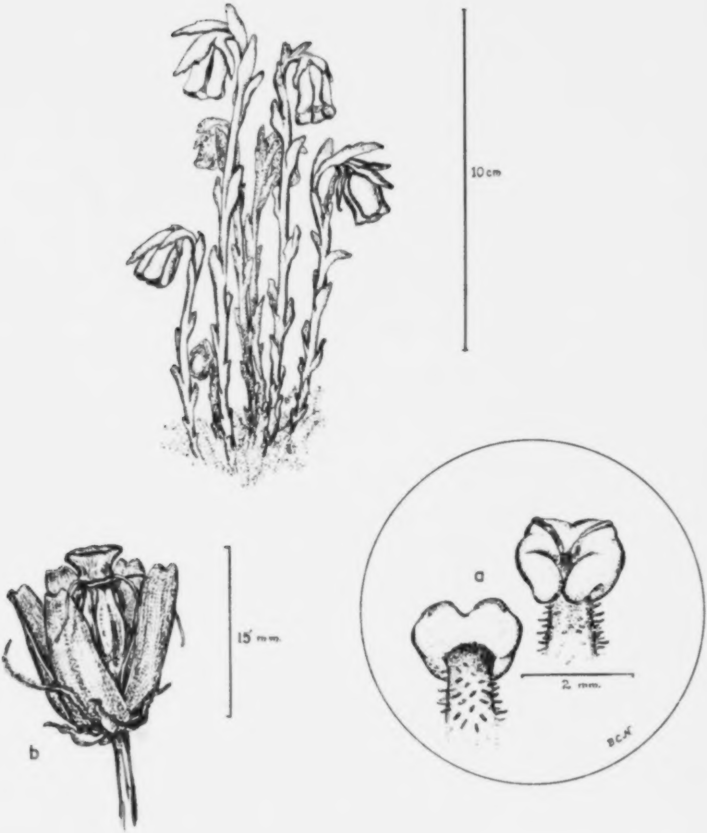
DISTRIBUTION IN BRITISH COLUMBIA.—Widely scattered throughout the Province; might be expected anywhere in suitable habitat.

COMMENTS.—As previously mentioned in the description, to some extent *Moneses* resembles wintergreen and prince's pine. However, unmistakable features make it easy to identify. The flower is single, terminal, waxy-white, quite large, and droops. The stigma is distinctly 5-lobed, and the leaves evergreen, opposite or arranged in threes in a whorl. It grows in moist deep woods, thriving particularly well on decaying wood. Owing to its fragile, creeping, long root-stocks, it does not take readily to being transplanted into gardens. It is common in our Province and is considered one of the most handsome members of this family.

MONOTROPA L. (INDIAN PIPE)

The name of this genus comes from the Greek *monos* (one) and *tropos* (direction), in allusion to the pendulous flowers turned to one side. The common name, Indian pipe, is only one of its names and refers to the pipe-like form. Other names inspired by the colour and texture of the stems are ghost flower, corpse plant, and ice plant.

The whole plant is non-green, waxy-white, pinkish, or yellowish when fresh, turning blackish on drying. Saprophytic (growing on decomposed vegetable-matter). The stems fleshy, in clusters arising from a dense rounded mass of matted mycorrhizal roots and clothed with numerous bract-like leaves. Flowers large, solitary, and nodding, but becoming erect in fruit. Sepals most likely lacking but the upper bracts of the stem proximate to the flower are sepal-like and often considered as bract-like calyx. Petals distinct, usually 5 but sometimes 4 or 6. Stamens twice as many as the petals with somewhat hairy filaments and unawned anthers, dehiscent by two slits extending about half or two-thirds of the length of the anther. Ovary superior, usually 5-celled. Fruit erect, ovoid to globose capsule. Genus represented in North America


10 cm
a
15 mm.
2 mm.
b
BCN

Indian pipe (*Monotropa uniflora* L.)—*a*, stamen, from both sides; *b*, flower after anthesis, showing development of fruit.

and Asia by only three species, of which only one occurs in British Columbia.

Monotropa uniflora L. **Indian Pipe**

SYNONYMS. — *Monotropa morisoniana* Michx., *Monotropa morisoni* Pers.

OTHER COMMON NAMES. — Ghost flower, corpse plant, ice plant.

DESCRIPTION.—*Plant:* Up to 30 cm. tall, saprophytic, waxy-white or pinkish, blackening with age, with a cluster of flowering stems arising from a dense rounded mass of matted mycorrhizal roots. *Leaves:* Scale-like, linear or lanceolate to ovate, up to 10 mm. long. *Flowers:* Solitary, nodding, narrowly campanulate, white and waxy; calyx of 2–4 irregular bract-like sepals or lacking; petals, usually 5, exceeding the sepals, oblong-spatulate; anthers dehiscent by 2 slits extending about half or more of the length of the anther; ovary superior; stigma funnelform. *Fruit:* Erect, subglobose capsule about 6 mm. long.

HABITAT.—Humus in shady coniferous forests.

BRITISH COLUMBIA
DISTRIBUTION MAP
MONOTROPA UNIFLORA

SEASON.—End of June to August.

RANGE.—Alaska, British Columbia, south to California and east to the Atlantic Coast.

DISTRIBUTION IN BRITISH COLUMBIA. — Most common in southern Vancouver Island and Gulf Islands, occasional on southern part of the Coast; very rare in the Interior, as indicated in distribution map. The most interesting localities came from north of Hazelton, where it was collected by J. E. Calder *et al.* (1954). This locality is most likely the northern limit of range for *Monotropa uniflora.*

COMMENTS.—Indian pipe lacks the green colour which enables most flowering plants to make their own food by photosynthesis; consequently, it lives like many fungi on organic material. It is generally found in the vicinity of rotting coniferous trees. The flower is in a nodding position but becomes erect in fruit. The waxy-whiteness disappears when it is gathered and exposed to the light. This is the most plentiful and best known of a large group of saprophytic plants that are peculiar to shady coniferous woods on the Coast.

OXYCOCCUS (TOURN.) HILL (BOG CRANBERRY)

The name of this genus comes from the Greek meaning sour berry. The most frequently used common name is bog cranberry or simply wild cranberry.

A slender trailing woody shrub with very thin, almost filamentous, flexible, glabrous or slightly pubescent branches, and alternate, sessile or nearly so, entire leaves. Flowers 4-merous, solitary or in small clusters, axillary or terminal, nodding on rather long slender pedicels; pedicels usually with 2 red scale-like bracts at or near the middle. Calyx 4-cleft, adnate to the ovary. Corolla dark pink deeply 4-parted; the petals slender and recurved. Stamens 8, with exserted, awnless anthers with long terminal tubes. Ovary inferior. Fruit a globose, reddish, many-seeded juicy and acid berry. A genus of about six or more species, widely distributed over the northern hemisphere. At least two species are credited to British Columbia.

The genus *Oxycoccus* is often treated as a subgenus of *Vaccinium,* although a number of authors keep it as a separate genus. Seymour (1953) states that there is no good reason to keep *Oxycoccus* as a subentity of *Vaccinium,* because of the fundamental differences in the flower. The flowers are not only 4-merous (4 sepals and 4 petals), but the corolla lobes are deeply cleft, and only the base of the corolla is connate. In contrast, in *Vaccinium* the corolla is united through its entire length and only toothed at the summit or even entire and merely undulated. These morphological differences in structure of the flower and growth habit justify distinction into separate genera, as accepted in this handbook.

Pedicels pubescent; leaves elliptic, broadest near the middle, 6–10 mm. long and 2–5 mm. broad, slightly revolute .... *O. quadripetalus*

Pedicels glabrous or essentially so; leaves distinctly broader near the base, 2–6 mm. long and 1.5–2 mm. broad, strongly revolute .... *O. microcarpus*

Oxycoccus microcarpus Turcz. Small Bog Cranberry

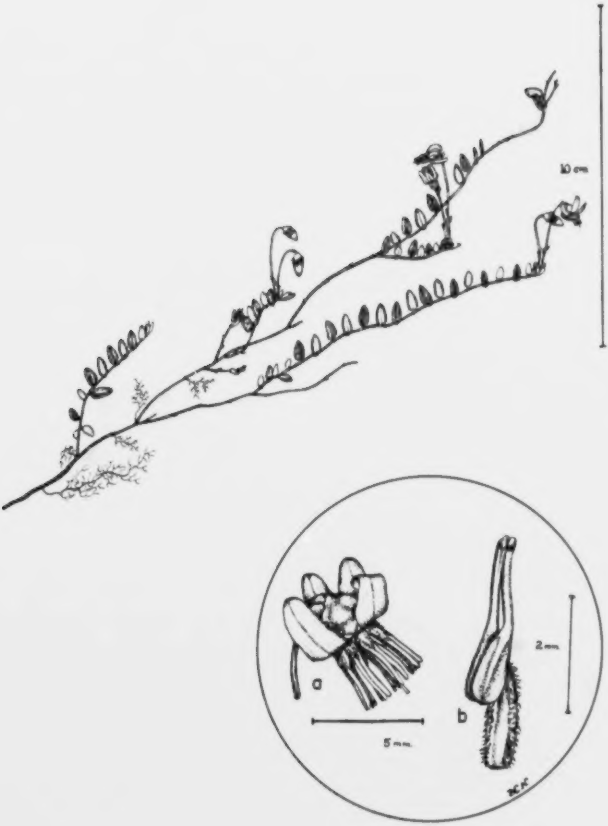
SYNONYMS.—*Vaccinium oxycoccus* L. (in part), *Oxycoccus oxycoccus* MacM. (in part).

DESCRIPTION.—*Plant:* Creeping, woody, vine-like shrub with red or reddish-brown bark (never black); branches rather short, glabrous, ascending, filiform and generally more than in other species. *Leaves:* Persistent coriaceous, elliptic-ovate, 2–6 mm. long, 1.5–2 mm. wide (distinctly broader near the base), pointed at apex, strongly revolute, dark green and lustrous above, strongly glaucous beneath. *Flowers:* Very often solitary or in clusters, not more than 3; pedicels rather long, glabrous, red, with a pair of red scaly bracts below the middle; perianth 4-merous; calyx lobes obtuse or acutish; petals deep pinkish, oblong-lanceolate, usually about 5 mm. long, recurved; filaments half as long as the anthers, ciliate; anthers awnless with pore-bearing terminal tubes. *Fruit:* Pale-pink berry up to 7 mm. in diameter.

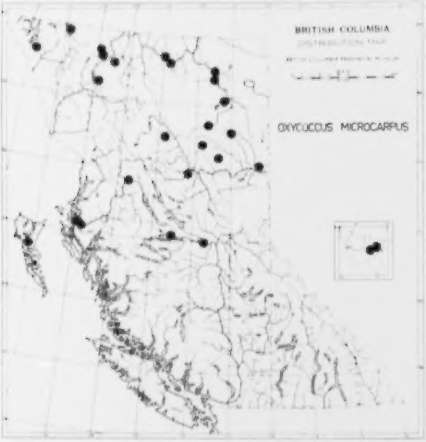
HABITAT.—Restricted to sphagnum bogs.

SEASON.—June to July.

RANGE.—Alaska, Yukon, British Columbia, and Alberta.


10 cm
a
5 mm
b
2 mm

Small bog cranberry (*Oxycoccus microcarpus* Turcz.)—*a*, single flower; *b*, anther.



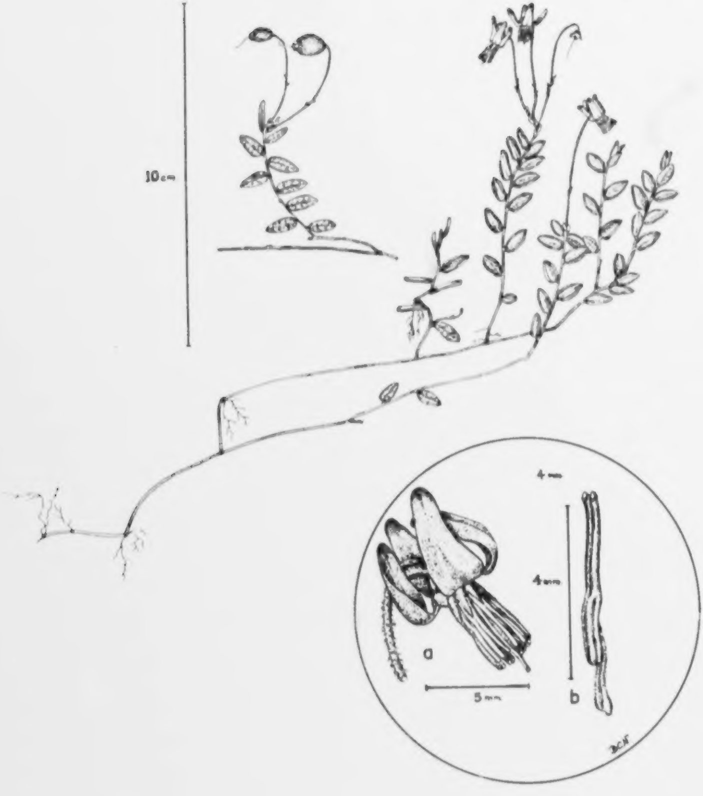
Distribution in British Columbia.—Restricted to northern British Columbia and as a rule does not occur below 54° north, except in the Queen Charlotte Islands.

Comments.—The main differences between this species and the closely related *V. quadrapetalus* are confined to the leaves and pedicels (*see* the key). In habit this species is much finer, with smaller leaves.

Oxycoccus quadripetalus Gilib. Bog Cranberry

Synonyms.—*Vaccinium oxycoccus L.* (in part), *Oxycoccus palustris* Pers., *Oxycoccus oxycoccus* MacM. (in part).

Description.—*Plant:* Creeping, woody shrub with slender stems up to 40 cm. or sometimes 50 cm. long, glabrous to finely pubescent with brown to black bark, and rooting at the nodes. *Leaves:* Persistent, coriaceous, elliptic, broadest near the middle, acute or acutish, entire, cordate or obtuse at the base, slightly revolute, dark green and shining on the upper surface, greyish and strongly glaucous beneath, 6–10 mm. long. *Flower:* Deep pinkish, 1 to several, terminal; pedicels slender, 2–4 cm. long, pubescent


10cm
4mm
4mm
a
5mm
b
DCN

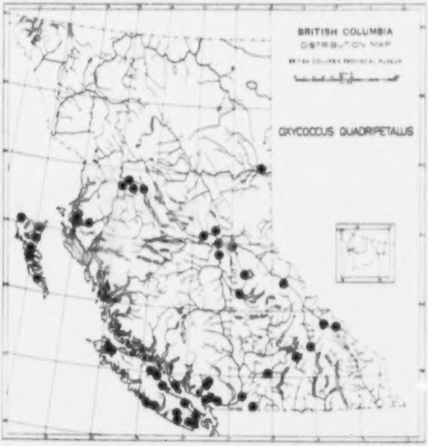
Bog cranberry (*Oxycoccus quadripetalus* Gilib.)—*a*, single flower; *b*, stamen.

with a pair of scaly bractlets near or below the middle. Calyx lobes obtuse or acutish; petals distinct, oblong, 5-7 mm. long, usually recurved; filaments ciliate, about half as long as the awnless anthers (including the pore-bearing terminal tubes). *Fruit:* Globose, dark-red berry, 8–12 mm. in diameter.

Habitat.—Sphagnum bogs, wet muskeggy places.

Season.—May to July.

Range.—Transcontinental in Canada; south to Oregon and Idaho in the west. Eurasia.



Distribution in British Columbia.—Widely scattered in the central and southern part of the Province and generally limited to south of the 56th parallel.

Comments.—The specific name *O. quadripetalus* Gilib. (1781) is not constantly used in literature, although it antedates *O. palustria* Pers. (1805); the decision in respect to the validity of its specific name must await further clarification, and for the time being the older name is accepted in this handbook.

Oxycoccus intermedius (A. Gray) Rydb.

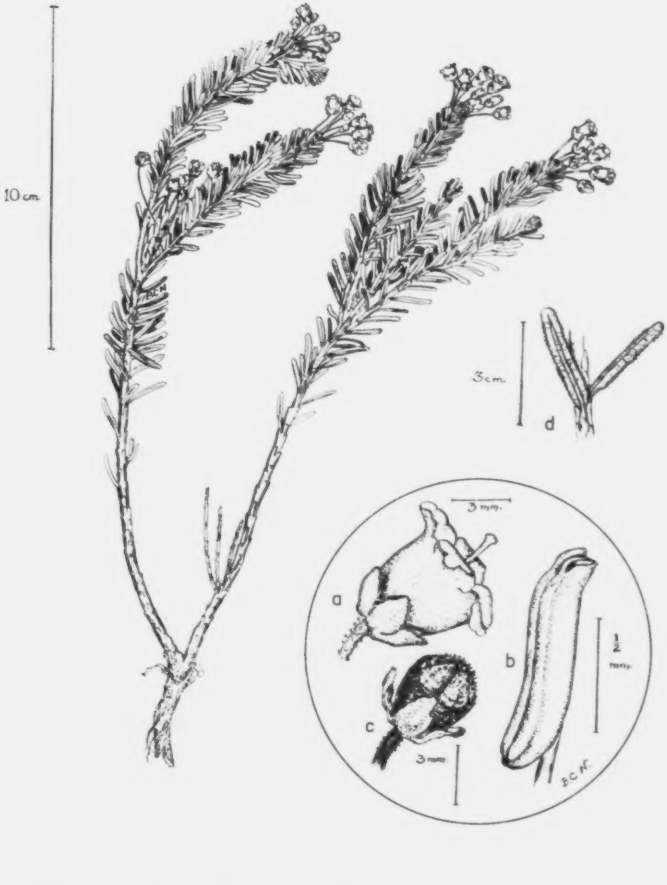
SYNONYMS.—*Oxycoccus intermedius* (A. Gray) Rydb., *Vaccinium oxycoccus* var. *ovalifolium* Michx., *Vaccinium oxycoccus* var. *intermedius* A. Gray, *Oxycoccus palustris* var. *intermedius* (A. Gray) Howell, *Oxycoccus ovalifolius* (Michx.) Pers.

Oxycoccus intermedius seems to represent an intermediate type between *O. microcarpus* and *O. quadripetalus*. For the time being, until the *Oxycoccus* complex has been studied sufficiently, the present author suggests classification of this intermediate form with *Oxycoccus quadripetalus* as suggested by Camp (1944), who bases his decision on the fact that both species are tetraploid. The present author has found that in most cases the material from the Pacific Northwest is inseparable from *Oxycoccus quadripetalus*.

PHYLLODOCE SALISB. (MOUNTAIN HEATH)

The name of this genus, *Phyllodoce*, comes from Greek mythology (name of a sea nymph, mentioned by Virgil).

Low, evergreen, heath-like shrubs, with prostrate or ascending branches. Leaves very much as in conifers, linear, revolute, needle-like, alternate and curved at the end of the branches, borne on short pedicels and leaving noticeable leaf scars. Flowers in umbel-like terminal clusters at the tips of the stems; pedicels glandular-pubescent, arising from persistent herbaceous bracts; perianth mostly 5-merous; calyx divided to near the base, persistent; corolla urceolate or campanulate, usually lobed; stamens, 7–10, on slender filaments, with narrowly oblong, unawned anthers, opened by terminal slit; ovary glandular-pubescent, usually 5-celled. Fruit subglobose capsule with numerous minute, narrowly winged seeds. About seven species in North America, North Europe, and Northern Asia. There are two species of the genus in British Columbia which often tend to hybridize, producing a very striking intermediate form, considered by some taxonomists as a distinct species. This low evergreen shrub with heath-like foliage and attractive flowers, which is used occasionally for alpine rock gar-


10 cm
3cm.
d
3 mm.
a
b
$\frac{1}{2}$ mm.
c
3 mm
BCN

Pink mountain heath (*Phyllodoce empetriformis* (Sm.) D. Don.)— ***a*, single flower; *b*, anther; *c*, fruit; *d*, enlarged leaves.**

dens, requires moist and acid soils. It is rather a difficult and challenging plant to grow, especially on low land.

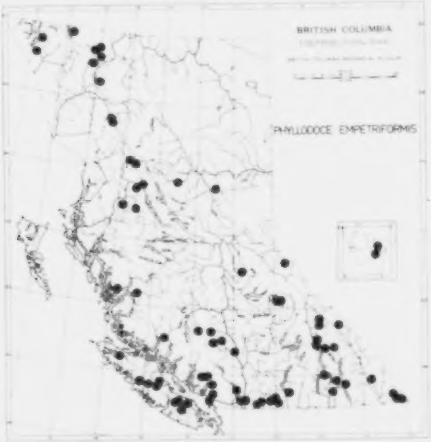
Corolla pinkish or rose, glabrous, campanulate .... *P. empetriformis*
Corolla yellowish-green, glandular-puberulent, narrowly urceolate .... *P. glanduliflora*

Phyllodoce empetriformis (Sm.) D. Don
Pink Mountain Heath

SYNONYMS.—*Menziesia empetriformis* Sm., *Menziesia grahamii* Hook., *Bryanthus empetriformis* A. Gray, *Phyllodoce grahamii* Pursh.

OTHER COMMON NAMES.—Pink mountain heather, false heather, pink heather, red heather.

DESCRIPTION.—*Plant:* Evergreen, low, much-branched matted sub-shrub with erect branches. *Stem:* Up to 35–40 cm. tall; young stem puberulent and glandular, older, glabrous. *Leaves:* Persistent, linear or linear-oblong, obtuse or acutish, grooved beneath, revolute, glabrous (except the minutely glandular margin), up to 15 mm. long and up to 1.5 mm. broad. *Flowers:* Few to many; pedicels puberulent, glandular, about 2 cm. long; calyx lobed



nearly to the base, glabrous, obtuse and ciliolate on the margins; corolla up to 8 mm. long, deep rose-pink, campanulate with recurved lobes; stamens 10; filaments glabrous, longer than the reddish anthers dehiscent by apical slits. *Fruit:* Globose capsule, about 3 mm. broad, slightly exceeded by the persistent calyx lobes.

HABITAT.—Mountain slopes in alpine and subalpine zones. Otherwise similar to *P. glandiflora*.

SEASON.—June to August.

RANGE.—Alaska, British Columbia to western Alberta, and south to California, Idaho, and Montana.

DISTRIBUTION IN BRITISH COLUMBIA.—Widely scattered throughout the Province, being very abundant in many areas above timber-line. It is absent from the Northeast and from the Queen Charlotte Islands.

COMMENTS.—Pink mountain heath is commonly called heather or false heather as it superficially resembles in habit and occurrence the masses of heather on the hills and mountain slopes of Scotland or other European countries. Botanically speaking, we have no true native heather in the Province as the term " true heather " applies to the plant *Calluna vulgaris* (L.) Hull (*see* Introduction). In British Columbia, pink mountain heath to some extent takes the place of the true heather of Europe, and its abundance on mountain slopes near timber-line or above almost throughout the Province, adds much to the great beauty and matchless charm of our subalpine and alpine meadows.

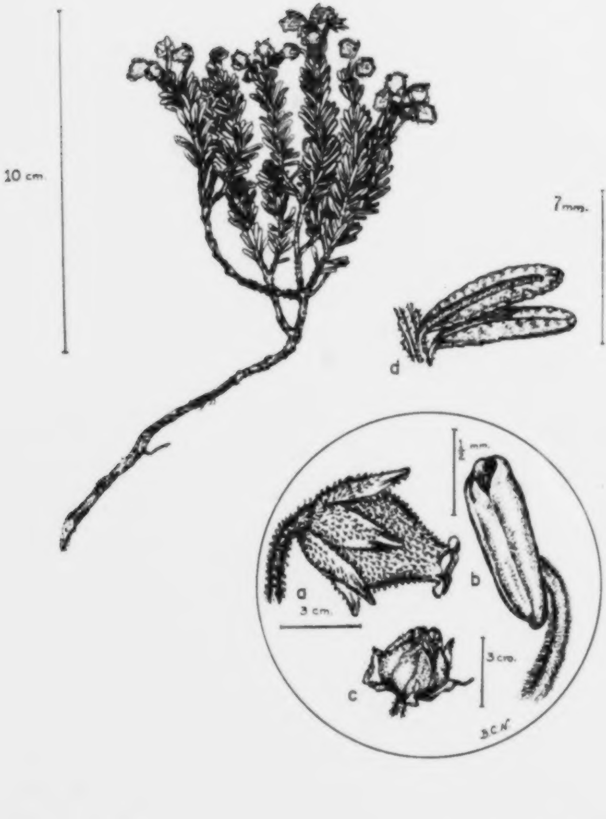
It is easily identified by its evergreen, needle-like leaves and rose-pink campanulate corolla.

***Phyllodoce glanduliflora* (Hook.) Coville**
Yellow Mountain Heath

SYNONYMS.—*Menziesia glanduliflora* Hook., *Bryanthus glanduliflorus* Gray.

OTHER COMMON NAMES.—Yellow Mountain heather, yellow heath, yellow heather.

DESCRIPTION. — *Plant:* Evergreen, matted sub-shrub with rather erect branches. *Stem:* Up to 35 cm. tall, glandular-puberulent when young and covered by raised peg-like leaf scars when


10 cm.
7mm.
d
½ mm.
a
3 cm.
b
3 cm.
c
B.C.N.

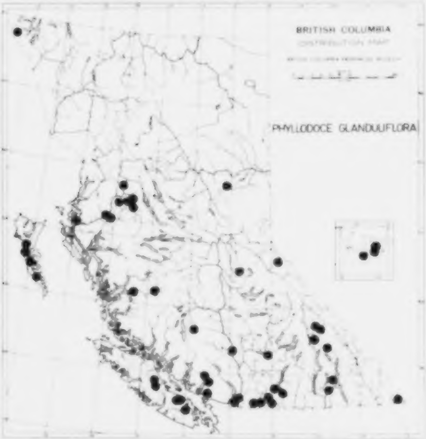
Yellow mountain heather (*Phyllodoce glanduliflora* (Hook.) Coville)—
a, single flower; *b*, anther; *c*, fruit; *d*, enlarged leaves.

mature and woody. *Leaves:* Evergreen, linear, alternate, needle-like, finely glandular-puberulent, revolute, up to 12 mm. long and up to 2 mm. broad. *Flowers:* One to few in cluster; pedicels glandular-pubescent, up to 3 cm. long. Calyx lobes narrowly lanceolate, acute, yellowish or greenish, glandular-pubescent, about 3 mm. long; corolla yellowish to greenish-white, urceolate with spreading ovate-lanceolate lobes and densely glandular-puberulent, up to 8 mm. long; anthers about 1 mm. long, purple on pubescent filaments; ovary glandular. *Fruit:* Globose capsule about 3 mm. broad, slightly exceeded by the persistent calyx lobes.

HABITAT.—Mountain slopes, rocky ledges and open places near and above the timber-line.

SEASON.—July to August.

RANGE.—Alaska, British Columbia to western Alberta, and south to Oregon and Wyoming.



DISTRIBUTION IN BRITISH COLUMBIA.—Very similar to *P. empetriformis* but less abundant in the Northern Interior and present on the Queen Charlotte Islands.

COMMENTS.—Not as attractive a species as pink mountain heath, due to the fact that the corolla, which is narrowly urceolate and constricted at the throat, is not very showy as it has a dirty yellowish or greenish colour. Otherwise it very much resembles pink mountain heath. The specific name *glanduliflora* is on account of the strongly glandular-puberulent character of this plant, particularly easily noticeable on the inflorescence and flowers. Yellow mountain heath very often grows beside pink mountain heath, being most abundant at higher elevations and undoubtedly has very similar ecological requirements.

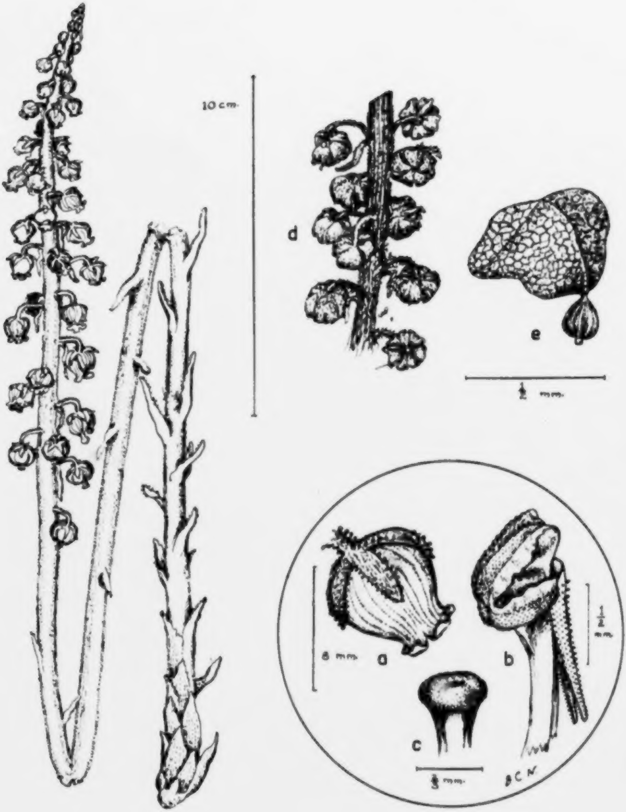
***Phyllodoce intermedia* (Hook.) Camp.**

SYNONYMS.—*Menziesia intermedia* Hook., *Phyllodoce glanduliflora* var. *intermedia* A. Nel., *Phyllodoce hybrida* Rydb., *Phyllodoce pseudoempetriformis* Stocker.

COMMENTS.—It is a well-known fact that *P. glanduliflora* and *P. empetriformis* often hybridize, resulting in a very striking intermediate form which differs chiefly in the more elongated paler pink corolla and the narrower acute sepals. Such hybrids occur only in areas where both parent plants are present, confirming the fact that hybridization has taken place. This hybrid was described by some taxonomists as a species or variety listed above in synonyms. I have seen this striking hybrid growing in great abundance, particularly in the Northwest in the Haines Cut-off. There are several horticultural forms of this hybrid, and I consider them as perhaps the nicest representatives of the Heather Family.

PTEROSPORA NUTT. (PINEDROPS)

The name of this genus comes from the Greek *pteros* (a wing) and *spora* (seed); the seeds are air-borne, having a wing attached to one end. Saprophytic plant without chlorophyll, fleshy, rather tall, erect, varying in colour from yellowish to pale purplish-red. Simple, glandular-pubescent stem arising from globular masses of roots, has narrow and elongated scale-like leaves, mostly near the base. Flowers numerous, borne in an elongated narrow open raceme, nodding on recurved pedicels. Calyx deeply 5-parted, densely glandular-hairy; corolla urn-shaped, 5-lobed, yellowish.


10 cm.
d
e
½ mm.
8 mm
a
b
½ mm.
c
⅓ mm.
B C N

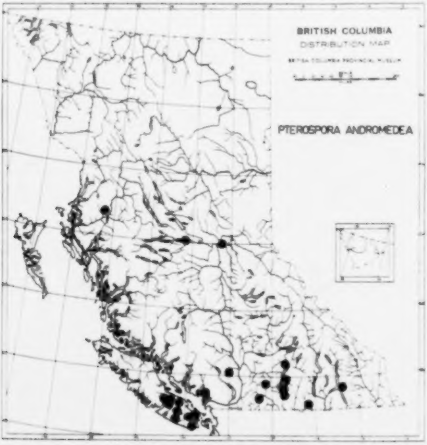
Pinedrop (*Pterospora andromeda* Nutt.)—*a*, single flower; *b*, stamen; *c*, stigma; *d*, portion of spike-like raceme; *e*, seed.

Stamens 10, with slender filaments and anthers with two recurved awns. Ovary superior with capitate 5-lobed stigma. Fruit a strongly depressed capsule. A monotypic genus of temperate North America.

***Pterospora andromedea* Nutt.** **Pinedrops**

OTHER COMMON NAME.—Albany beechdrop.

DESCRIPTION. — *Plant:* Tall, up to 1 m., erect, fleshy, unbranched, pale purplish to reddish-brown, glandular-hairy and very sticky, saprophytic, without chlorophyll, arising from a thick ball-like mass of roots. *Leaves:* Scale-like, lanceolate to linear-lanceolate, thick, crowded and usually imbricated at the base of the stem. *Flowers:* In many-flowered elongated, open, bracted raceme 10–50 cm. high; each flower nods on recurved pedicel; calyx deeply 5-parted, densely glandular-pubescent; sepals linear-lanceolate up to 5 mm. long; corolla urn-shaped, 5-lobed, the lobes short, rounded, whitish to yellowish, persistent, up to 10 mm. long; stamens 10, with rather short slender filaments; each ovoid anther



with two recurved awns about as long as the pollen sacs, opened by longitudinal slit, nearly full length. *Fruit:* Depressed-globose capsule up to 12 mm. broad.

HABITAT.—In rich deep humus of coniferous forests, often in yellow pine litter.

SEASON.—June to August.

RANGE.—South Alaska, British Columbia, east to the Atlantic Coast, south to Pennsylvania, south to California, and in the Rocky Mountains to Mexico.

DISTRIBUTION IN BRITISH COLUMBIA.—Quite abundant in suitable habitat on southern Vancouver Island and Southwest Interior. Very rare on the Coast and Southeast Interior and Central Interior. Not known north of latitude 56°.

COMMENTS.—This is the tallest of our saprophytes, sometimes reaching a height of 3 feet or more. The stems are upright, straight, and slender, with numerous scattered scales near the base. The flowers are in long loose racemes, whitish, yellow or pinkish, with drooping, urn-shaped corolla. The whole plant is sticky-glandular.

PYROLA L. (WINTERGREEN)

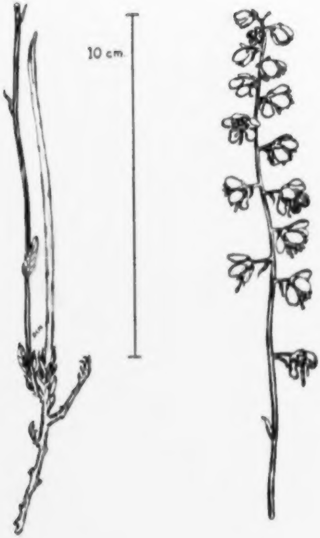
The name of this genus, *Pyrola*, comes from the Latin diminutive of *Pyrus,* the pear-tree, alluding to the similarity of the leaves in some species to the shape of the pear.

Rather low, perennial glabrous herbs with slender creeping root-stocks, autophytic to saprophytic. Leaves mostly basal or sometimes missing, evergreen, rather thick. Flowering scapes leafless but with 1 to few bracts similar to the floral bracts. Flowers in terminal several-flowered racemes, short-pedicelled, and mostly nodding. Perianth 5-merous; sepals persistent, slightly united at base; petals distinct, usually concave, white to greenish or purple, deciduous; stamens 10, bent inward, with filaments more or less dilated at base and awnless anthers dehiscent by 2 pores; ovary superior, 5-locular; style straight or deflexed at the base, then curved upwards and usually thickened toward the apex. Fruit a globose capsule, 5-valved, dehiscent from the base upwards.

A genus of about fifteen species of North America and Eurasia. Of these, eight grow in British Columbia and compose one of the largest genera of the family. Most of the species prefer the cool coniferous forests, and generally speaking they are partial to wet habitats. The wintergreens are an interesting group of plants, with leafless forms difficult to assign to proper taxa.

The *Pyrolas* are the true wintergreens. However, they must not be confused with false wintergreen, from which the well-known odorous oil of wintergreen is procured. .The latter is *Gaultheria procumbens*, commonly called checker-berry, and is a plant of Eastern America.

- A. Style straight or nearly so; without a collar or ring below the peltate-lobed stigma; anthers without projecting tubes.
  - B. Raceme secund (borne one side of an axis); style exsert at anthesis and longer than the mature capsule, leaves serrulate .... *P. secunda*
  - BB. Raceme not secund; style not exsert at anthesis, shorter than the capsule; leaves crenulate .... *P. minor*
- AA. Style declined at anthesis, often with a collar or ring below the stigma; anthers with short projecting tubes.
  - B. Green leaves wanting on the flowering branches (occasionally 1–3 much-reduced leaves on vegatative branches) .... *P. aphylla*
  - BB. Green leaves present on all the branches.
    - C. Leaves mottled along the veins on the upper surface .... *P. picta*
    - CC. Leaves not mottled along the veins; uniformly green.
      - D. Leaves tapered to an acute base, spatulate or oblanceolate to rhombic-elliptic, usually somewhat glaucous and dentate .... *P. dentata*
      - DD. Leaves rounded at the base, ovate to orbicular, little, if at all, glaucous and dentate.
        - E. Flowers rose-purple or pinkish .... *P. asarifolia*
        - EE. Flowers greenish-white or yellowish.
          - F. Leaf blades usually less than 3 cm. long, equal or longer than petioles; racemes few-flowered (not more than 10); tubes of the anthers straight *P. virens*
          - FF. Leaf blades over 3 cm. long, exceeding the petioles; racemes with 10 or more flowers; tubes of the anthers curved .... *P. elliptica*



Leafless pyrola (*Pyrola aphylla* Smith).

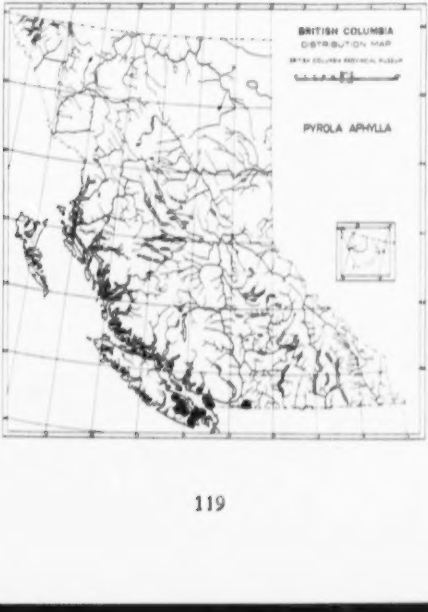
Pyrola aphylla **Smith** — **Leafless Pyrola**

SYNONYMS.—*Thelaia aphylla* Alef., *Pyrola picta* f. *aphylla* Camp., *Pyrola sparsifolia* Suksd., *Pyrola picta* ssp. *picta* var. *sparsifolia* H. Andr., *Pyrola picta* ssp. *picta* var. *suksdorfii* H. Andr.

DESCRIPTION.—*Plant:* Perennial with long, branched, slender root-stock; flowering stem rather slender, up to 30 cm. tall, reddish with a few lanceolate, acuminate scarious bracts. *Leaves:* Commonly reduced to narrow, sessile bracts, sometimes 1–3 elliptic leaves present, but not more than 2 cm. long. *Flowers:* In open few- to many-flowered raceme with lanceolate floral bracts, shorter than, or equal to the pedicels; sepals reddish-purple, about 2 mm. long; petals broadly obovate, greenish-cream to flesh or pinkish, up to 8 mm. long; anthers with pores on the side of very short tubes; style slightly declined at anthesis and with a collar below the stigma. *Fruit:* Globose capsule 5–8 mm. broad.

HABITAT.—Humus in open or dense coniferous forests, moist ground in wooded areas.

SEASON.—June to August.



RANGE.—British Columbia to Southern California; east to Idaho and Montana.

DISTRIBUTION IN BRITISH COLUMBIA.—Fairly common on the southeast coast of Vancouver Island and Gulf Islands; sporadic in the extreme south Coast.

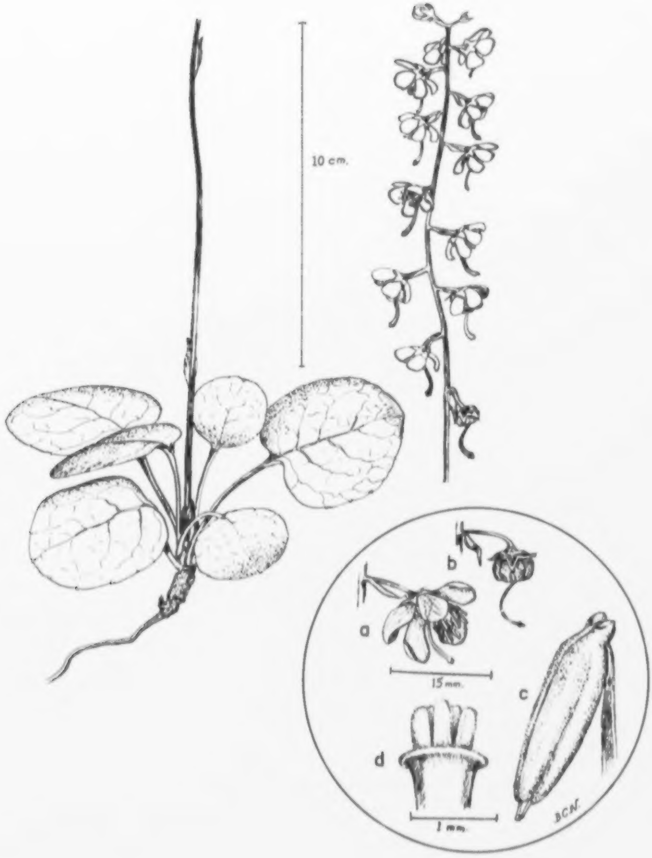
COMMENTS.—As the common name indicates, the plant does not have foliage other than a few pinkish bracts on the scape. It therefore draws its nourishment from decayed organic matter, and so must be at least partly saprophytic. It is logical to assume that *Pyrola aphylla* is most likely a leafless form of species like *P. asarifolia, P. virens, P. picta,* and *P. dentata* by a process of degeneration. Since the species of *Pyrola* are separable mainly on the basis of leaf characters, one might find it difficult to assign them to their proper taxa. Taking this under consideration, at least for the time being, I consider it advisable to keep *P. aphylla* as a valid species. The fact that the leaves are reduced to bracts makes this species very easy to identify.

***Pyrola asarifolia* Michx. Large Wintergreen**

SYNONYMS.—*Pyrola bracteata* Hook., *Pyrola incarnata* Fish., *Pyrola uliginosa* T. & G. ex Torr., *Pyrola elata* Nutt., *Thelaia bracteosa* Alef., *Pyrola rotundifolia* var. *asarifolia* Hook., *Pyrola rotundifolia* var. *bracteata* Gray, *Pyrola rotundifolia* var. *purpurea* Bunge, *Pyrola rotundifolia* var. *incarnata* Fish., *Pyrola rotundifolia* var. *uliginosa* Farw., *Pyrola asarifolia* var. *bracteata* Jesp., *Pyrola asarifolia* var. *purpurea* Fern., *Pyrola asarifolia* var. *incarnata* Fern., *Pyrola asarifolia* var. *ovata* Farw., *Pyrola asarifolia* var. *uliginosa* Farw., *Pyrola bracteata* var. *hillii* J. K. Henry.

OTHER COMMON NAMES.—Oregon wintergreen, large pyrola.

DESCRIPTION.—*Plant:* Perennial, with long, creeping, branched root-stock; flowering stem up to 40 cm. tall, with 1–3 scarious bracts below the inflorescence. *Leaves:* Basal with petioles usually at least as long as the blades, suborbicular to elliptic or obovate, rounded to acute at the base and rounded to retuse at the apex, coriaceous, dark green and shining on the upper surfaces, crenulate, paler and often reddish beneath, 3–7 cm. long and nearly as broad. *Flowers:* In a long loose raceme with up to 20 or sometimes more


10 cm.
b
a
15 mm.
c
d
1 mm.
BCN.

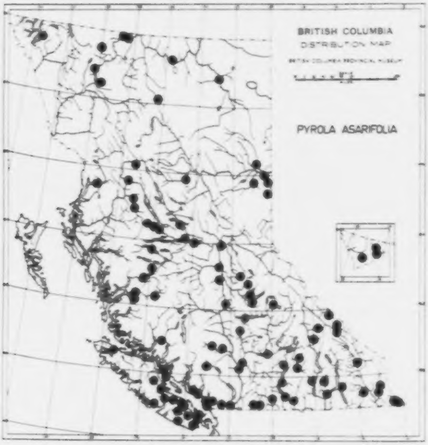
Large wintergreen (*Pyrola asarifolia* Michx.)—*a*, single flower; *b*, fruit; *c*, anther; *d*, stigma.

flowers on pedicels up to 8 mm. long; sepals triangular-lanceolate up to 5 mm. long; petals ovate to obovate, pinkish to purplish-red, up to 8 mm. long; anthers reddish or yellow in age, tubes short, and pores terminal; style strongly declined, 5–8 mm. long with characteristic collar below the stigma. *Fruit:* Capsule, 6–8 mm. broad.

Habitat.—Moist places, chiefly in open coniferous forest.

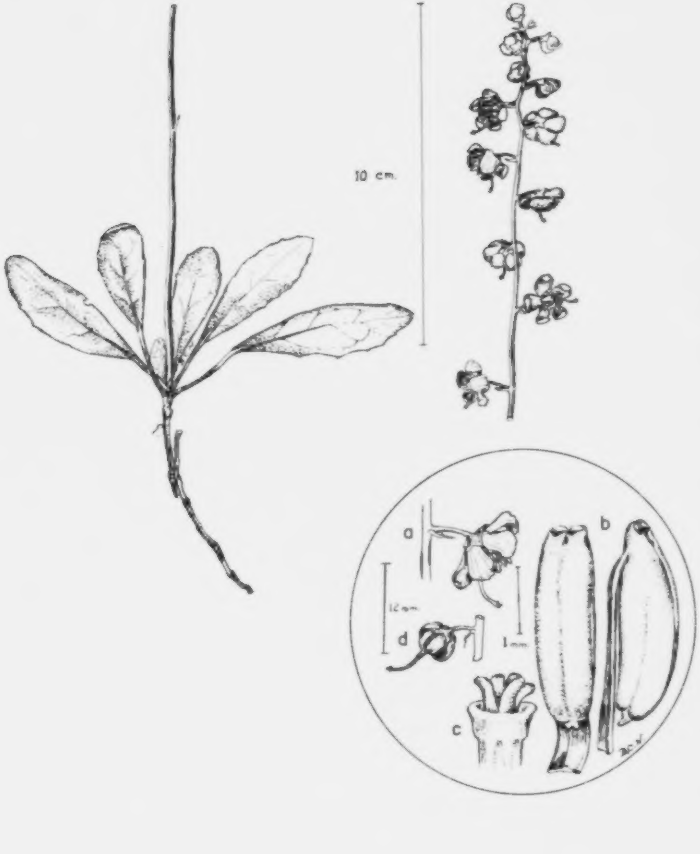
Season.—May to September.

Range.—Alaska, Yukon, British Columbia, and across Canada to northeastern North America; south to California. Also Asia.



Distribution in British Columbia.—Widespread and very common throughout the Province wherever habitat is suitable. Not known yet from the Queen Charlotte Islands.

Comments.—A number of species and varieties have been proposed for large wintergreen, based primarily on the length of the sepals and leaf characters. There is a noticeable variation within this species, and it is difficult to recognize one form without


10 cm.
a
b
12 mm.
d
1 mm.
c

Nootka wintergreen (*Pyrola dentata* Smith)—*a*, single flower; *b*, anther, showing front and side view; *c*, stigma; *d*, fruit.

recognizing others. In my opinion these are only polymorphic varieties which so commonly occur within this species. Two rather poorly defined varieties are generally recognized—var. *asarifolia*, with rather cordate and entire leaves, and var. *purpurea* (Bunge) Fern., with acute and serrulate leaf blades. There are also differences in the shape and colour of the sepals separating the varieties mentioned above, but I consider these not as dependable as the leaf characters. This is the largest and most handsome wintergreen occurring in our Province. The stout many-flowered scape with waxy flowers and leathery, glossy green leaves arranged in a rosette at the base of the scape make this plant extremely handsome.

***Pyrola dentata* Smith.** **Nootka Wintergreen**

SYNONYMS.—*Pyrola pallida* Greene, *Pyrola picta* ssp. *dentata* Piper, *Pyrola picta* ssp. *integra* Piper, *Pyrola picta* var. *pallida* Parish, *Pyrola dentata* var. *integra* Gray, *Pyrola dentata* var. *apophylla* Copeland.

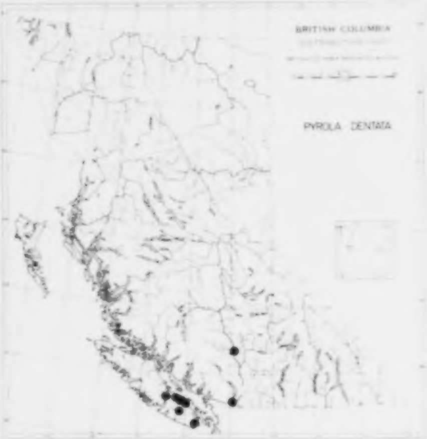
DESCRIPTION. — *Plant:* With branching widespread rhizome and usually single flowering stem up to 25 cm., with many basal leaves. *Leaves:* Up to 6 cm. long, broadest above the middle, usually acute or obtuse or sometimes rounded at the apex, more or less dentate, rather leathery, glaucous and pale green or bluish-green, with petioles as long as the blades, acute at the base. *Flowers:* In cylindric raceme, 5–20–flowered, with bracts linear-subulate and flowers about 1 cm. broad; sepals greenish with triangular to ovate acute lobes; corolla open-campanulate; petals cream to greenish-white, oval to obovate, up to 8 mm. long; anthers apiculate at the lower tip with pores on the side of rather short tubes; styles declined and strongly upcurved in maturity. *Fruit:* Depressed, globose capsule up to 5 mm. broad.

HABITAT.—Dry coniferous forests, yellow pine parkland, dry woodlands.

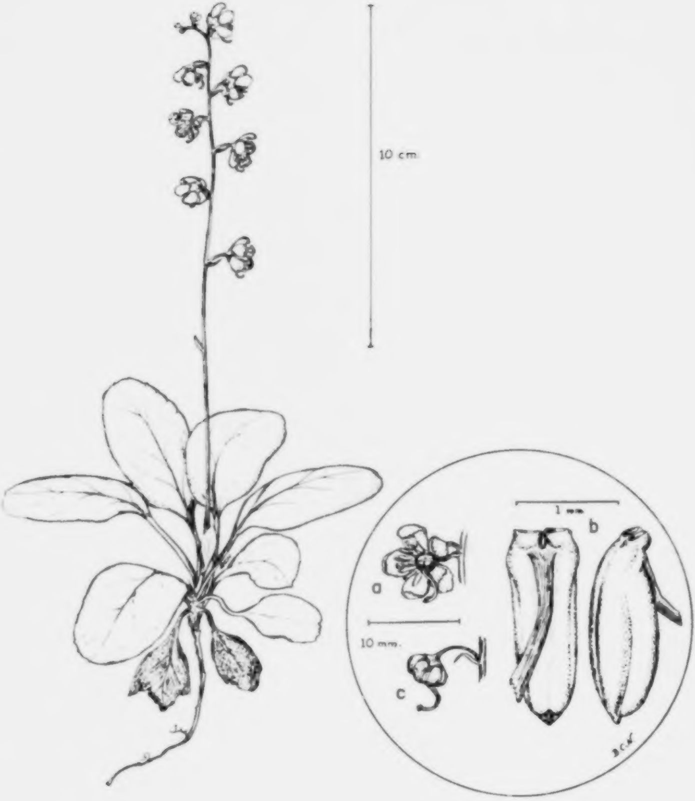
SEASON.—June to August.

RANGE.—British Columbia to California, east to Montana and Idaho.

DISTRIBUTION IN BRITISH COLUMBIA. — Rare. Confined mainly to southern Vancouver Island and very sporadic on the extreme south Coast and Southwest Interior. There is a possibility that the limited number of localities is due to it being confused with *P. picta,* which is very similar in appearance.



COMMENTS.—To some extent the habit of *P. dentata* resembles *P. picta,* but the two species can be separated easily since *P. picta* has deep-green leaves, mottled on the upper surface, with whitish streaks along the veins, while the leaves of *P. dentata* are pale green and unmottled. Unfortunately the mottling often cannot be judged in dry specimens, due to the fact that as the leaves fade the reticulation disappears, and in addition some of our *P. picta* specimens have foliage very similar to *P. dentata,* with only very delicate streaks along the main veins. *P. picta* is one of the rarest of our *Pyrolas* and is confined mainly to Vancouver Island, growing in areas where *P. dentata* is also abundant. C. L. Hitchcock, in *Vascular Plants of the Pacific Northwest,* states: "Often very similar to *P. picta* and possibly only a phase of that taxon." In the opinion of this author, *P. dentata* is not a clear species, and it is questionable whether or not it deserves specific rank. However, it is beyond the scope of this handbook to propose any change


10 cm.
1 mm.
b
a
10 mm.
c

Wild lily-of-the-valley (*Pyrola elliptica* Nutt.)—*a*, single flower; *b*, anther, back and side view; *c*, fruit.

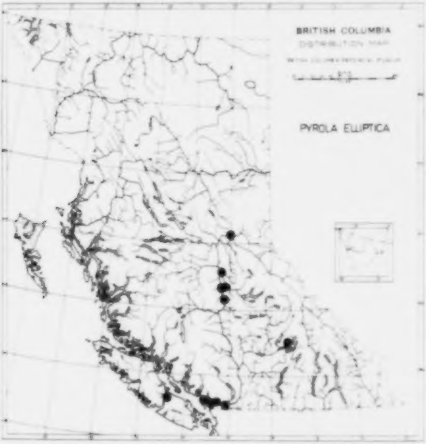
in its nomenclatural status. Clarification must await further investigations.

Pyrola elliptica Nutt. **Wild Lily-of-the-valley**

SYNONYM.—*Thelaia elliptica* Alef.

OTHER COMMON NAME.—Shinleaf.

DESCRIPTION.—*Plant:* Perennial with slender rhizome and single flowering stem with many rosulate basal leaves. *Leaves:* Thin and membranaceous, dull, usually longer than the petioles, elliptic, oblong to obovate, rounded at the apex, crenulate-serrulate, up to 7 cm. long, and about three-quarters as broad. *Flowers:* In cylindric 2–20-flowered racemes with scapes up to 25 cm. tall, naked or with 1 or 2 lanceolate bracts; sepals triangular to ovate, acute, longer than broad; corolla open-campanulate, white or creamy, rarely pink-tinged; petals obovate, spreading, up to 8 mm. long; anthers with rather short tubes and somewhat recurved; style up to 7 mm. long, declined and curved, with noticeable collar below the stigma. *Fruit:* Depressed, globose capsule, 4–5 mm. broad.



HABITAT.—Dry or moist woods, wooded slopes.

SEASON.—June to August.

RANGE.—British Columbia to Nova Scotia, south to New York, Illinois, New Mexico, and Idaho.

DISTRIBUTION IN BRITISH COLUMBIA.—Rather rare, with a few scattered localities on the extreme south Coast and in the Interior.

COMMENTS.—This is not a very distinct species, and very often it is confused with *P. asarifolia,* both having rather large ovate to orbicular leaves (over 2 cm. in width and well over half as long as they are broad), often rounded at the base, and racemes with 10 or more flowers. One of the most important characters separating these two species is the colour of the petals, which are yellowish or greenish-white in *P. elliptica* and pinkish to rose-purple in *P. asarifolia.* Unfortunately the colour of the petals cannot be judged from dry herbarium specimens. The limited number of localities is due not only to its rarity, but also to the fact that some herbarium specimens are difficult to identify.

*** *Pyrola grandiflora* Radius** **Arctic Wintergreen**

SYNONYMS.—*Pyrola rotundifolia* Cham. & Schlecht., *Pyrola occidentalis* R. Br., *Thelaia occidentalis* Alef., *Thelaia grandiflora* Alef., *Pyrola chlorantha* var. *occidentalis* Gray, *Pyrola grandiflora* Kjelman, *Pyrola borealis* Rydb., *Pyrola canadensis* Andres.

OTHER COMMON NAMES.—Arctic pyrola, large-flowered pyrola.

DESCRIPTION.—*Plant:* Perennial from slender rhizomes with single flowering stem, from 5 to 15 cm. tall and 1–3 brown membranaceous bracts. *Leaves:* Leathery, lustrous, often whitened along the veins, rounded at both ends or truncate at the base, 2–4 cm. long, about equaling their petioles. *Flowers:* In cylindric raceme, few- to 10-flowered with scarious, brown, broad-lanceolate bracts; sepals elliptic-oblong, herbaceous or petaloid, purplish with erose scarious margins distinctly nerved, up to 4 mm. long, petals broadly rounded, white or tinged with pink, up to 10 mm. long; anthers about 2 mm. long, rounded and rather blunt at the base, not prolonged into terminal tube; filaments slender, almost filiform

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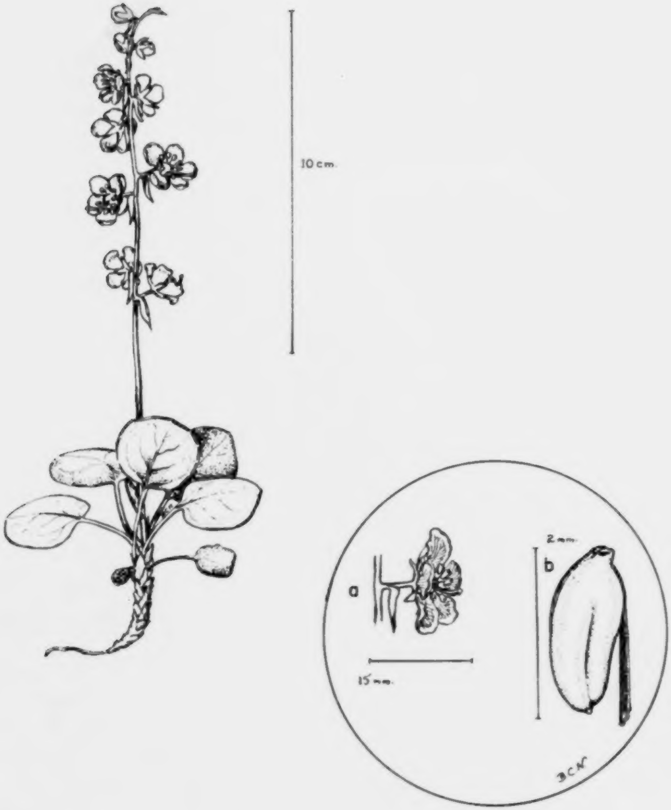
* Not included in the key.


10 cm.
a
15 mm.
2 mm.
b
BCN

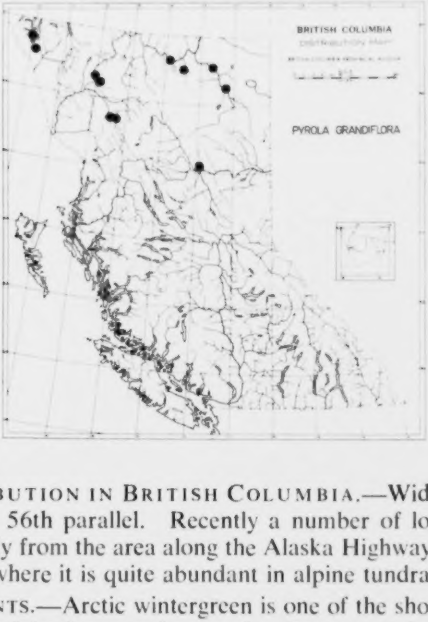
Arctic wintergreen (*Pyrola grandiflora* Radius)—*a*, single flower; *b*, anther.

at the summit; style deflexed at base, up to 6 mm. in maturity. *Fruit:* Globose capsule about 6 mm. in diameter.

HABITAT.—Wet soil at high altitudes in the mountains, arctic tundra.

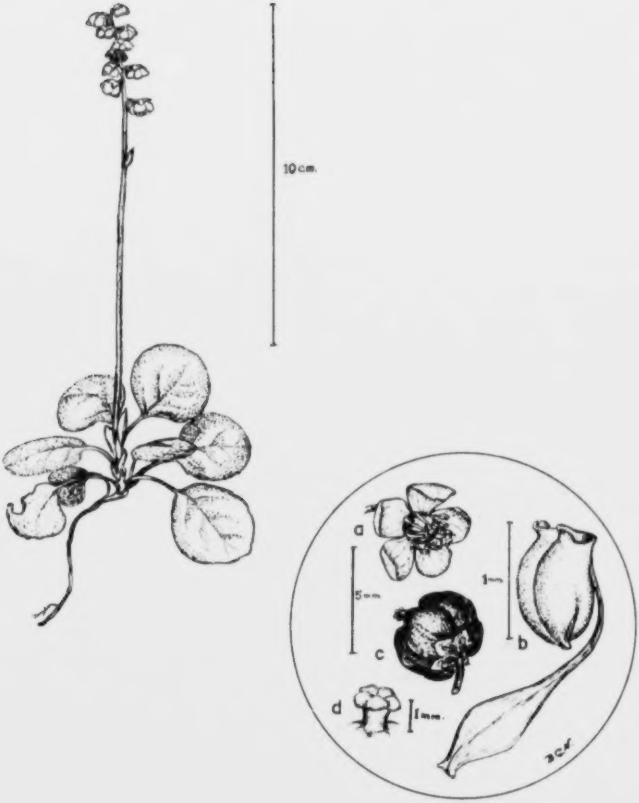
SEASON.—June to August.

RANGE.—Arctic circumpolar; Alaska, Yukon to Labrador and Newfoundland, south to British Columbia, Alberta, Saskatchewan, Quebec, Greenland. Also Eurasia.



DISTRIBUTION IN BRITISH COLUMBIA.—Widely scattered north of the 56th parallel. Recently a number of localities were added, mainly from the area along the Alaska Highway and Cassiar Mountains, where it is quite abundant in alpine tundra.

COMMENTS.—Arctic wintergreen is one of the showiest species on account of its large and attractive flowers, and stiff leathery leaves. According to Porsild (1939), *P. grandiflora* does not pose any problem in identification in eastern Canada, but in the west this species is variable. Most of our material is referable to var. *canadensis* (Andres) Pors., which differs from the typical form by hav-


10 cm.
a
5 mm
1 mm
b
c
d
1 mm.

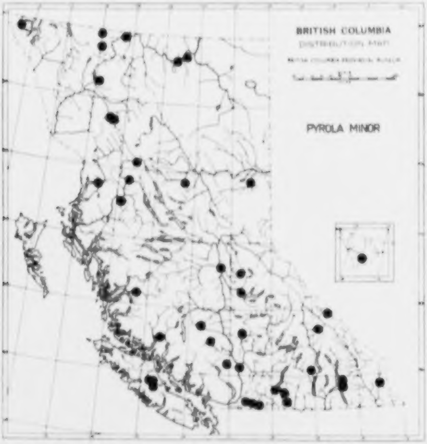
Lesser wintergreen (*Pyrola minor* L.)—*a*, single flower; *b*, stamen; *c*, fruit; *d*, stigma.

ing longer petioles, inflorescence with many and smaller flowers, which are odourless and deltoid, entire sepals. In var. *typica*, petioles are equal to the blades, the inflorescence is short with fewer and larger flowers, and sepals are lanceolate and erose at apex.

***Pyrola minor* L.** **Lesser Wintergreen**

SYNONYMS.—*Amelia minor* Alef., *Erxlebenia minor* Rydb., *Pyrola conferta* Fisch. ex Ledeb., *Pyrola minor* var. *conferta* C. & S.

OTHER COMMON NAMES.—Common wintergreen, English wintergreen, lesser pyrola.



DESCRIPTION.—*Plant:* Perennial with slender rhizomes; flowering stem in most cases single, naked or with 1 or 2 scarious bracts, up to 25 cm. high. *Leaves:* Basal, broadly elliptic or orbicular, rounded to subcordate at base, dark green and rather thin, finely crenulate, up to 3 cm. long with petioles as long or longer than the blades. *Flowers:* In raceme few- to 2-flowered, flowers rather crowded, nodding, on pedicels up to 5 mm. long; sepals pinkish, triangular-ovate about 1–3 mm. long; petals white or pink, oval, up to 5 mm. long; anthers 10, about 1 mm. long, ovate, with terminal pores and flattened filaments; style straight, up to 2 mm. long without a collar; stigma 5-lobed. *Fruit:* Depressed-globose capsule, 5–6 mm. broad.

HABITAT.—Humus in coniferous forests, moist mossy woods, and damp mountain forests.

SEASON.—June to August.

RANGE.—Alaska, Yukon, British Columbia to Southern California, east to the Atlantic Coast and Greenland; also in the Rocky mountains to Colorado. Eurasia.

DISTRIBUTION IN BRITISH COLUMBIA.—Widely scattered throughout the Province. Rather rare on Vancouver Island, where it is known only from the Forbidden Plateau area. Not collected in the Queen Charlotte Island.

COMMENTS.—In general appearance this species might be confused with *P. virens.* It does differ however in having its style straight or nearly so, and a very short stigma (usually not over 2 mm. long) without a collar, and flesh-coloured to pinkish petals. In addition, the anthers are opened by large pores and have neither awns nor tubes. In comparison, *P. virens* has its styles curved to one side (3–6 mm. or even longer) with a distinct collar below the lobed stigma, and pale yellowish petals and anthers with well-developed straight tubes.

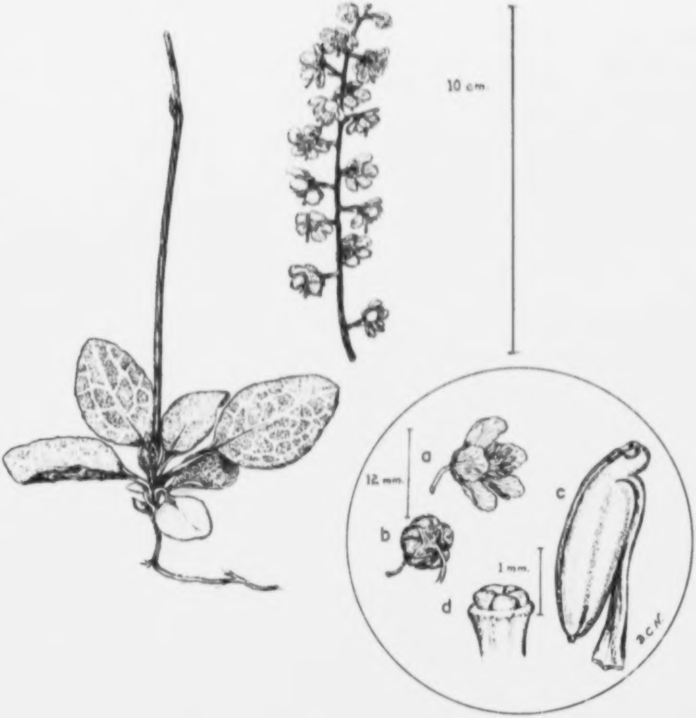
The collection localities of this species in the Province are too scattered to give a clear pattern of its distribution. The sparse occurrence on the Coast and on Vancouver Island is probably due to lack of collections from these areas.

***Pyrola picta* Smith** **White-veined Wintergreen**

SYNONYMS.—*Pyrola septentrionalis* H. Andr., *Pyrola conardiana* H. Andr., *Pyrola paradoxa* H. Andr., *Pyrola picta* f. *aphylla* (Smith) Camp.

OTHER COMMON NAMES.—Shin-leaf, white-veined pyrola, silver-leaf wintergreen.

DESCRIPTION.—*Plant:* Perennial with rather slender branching rhizome and sterile stems with several leaves; flowering stem red-


10 cm.
a
12 mm.
b
c
1 mm.
d
DCN

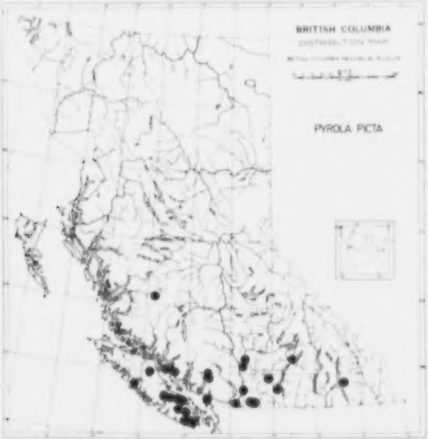
White-veined wintergreen (*Pyrola picta* Smith)—*a*, single flower; *b*, fruit; *c*, stamen; *d*, stigma.

dish, single, up to 30 cm. tall, with a few lanceolate rather small bracts. *Leaves:* Ovate-lanceolate to broadly ovate, acute or rounded at the apex and obtuse at the base, up to 7 cm. long, coriaceous, entire or irregularly denticulate, green and mottled with white along the upper surfaces of the main veins, and often purplish on the lower surface. *Flowers:* In raceme few- to 20-flowered on rather short pedicels not longer than 10 mm. and accompanied by lanceolate bracts often as long as the pedicels; sepals reddish, triangular, acute, about 2 mm. long; petals oval, purplish, yellowish or greenish-white, up to 8 mm. long; anthers with short tubes and pores on the side of tubes, up to 2 mm. long; styles strongly declined, thickened upwards, about 10 mm. long in anthesis. *Fruit:* Globose capsule.

HABITAT.—Humus in rather dry coniferous forests, occasionally in open forests rich in humus.

SEASON.—June to August.

RANGE.—British Columbia south to Southern California, east to Montana and New Mexico.



DISTRIBUTION IN BRITISH COLUMBIA.—Most common on Vancouver Island and Southwest Interior of the Province. Sporadic in the Southeast Interior.

COMMENTS.—This is a pleasingly pretty plant with erect scapes not taller than 30 cm., and with flowers variable in colour from greenish-white to purplish, arranged in a few- to 20-flowered raceme. It has very attractive foliage of oblong-ovate or orbicular green leaves, variegated with white along the veins, and often purple beneath. The characteristtic variegation of the leaves make this plant easily distinguishable from other wintergreens.

There is considerable variation in our material, especially as to the leaves, but as this variation seems to occur with great irregularity, it is improbable that it is significant.

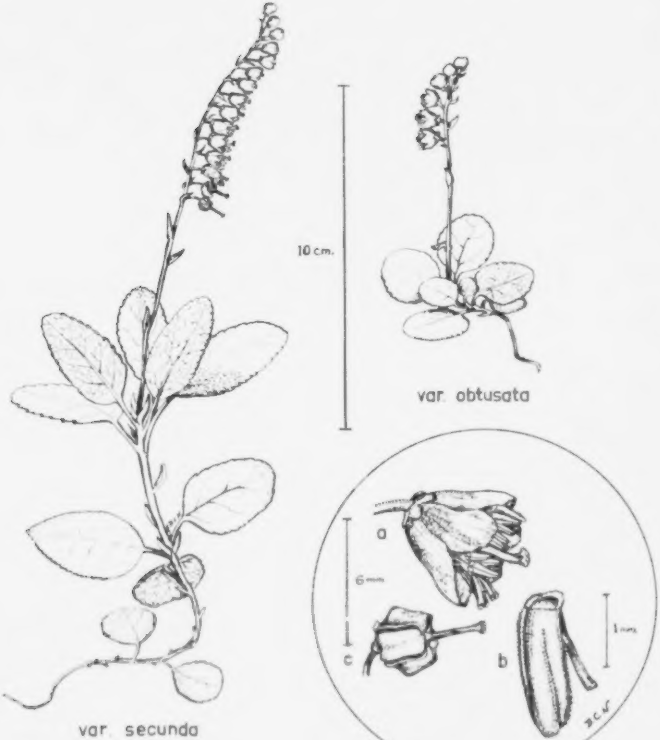
***Pyrola secunda* L.** **One-sided Wintergreen**

SYNONYMS. — *Ramischia secunda* Garcke, *Orthilia secunda* House, *Actinocyclus secundus* Klotzsch., *Orthilia secunda* var. *obtusata* House., *Pyrola secunda* var. *pumila* Paine.

OTHER COMMON NAMES.—Serrated wintergreen, one-sided pyrola.

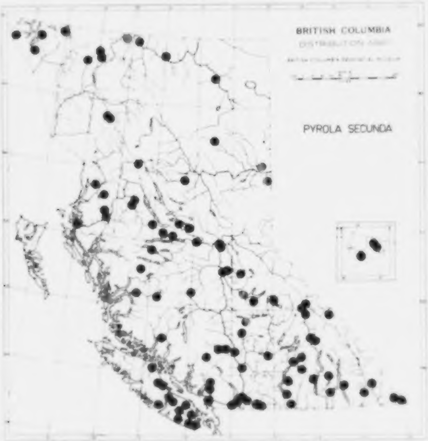
DESCRIPTION.—*Plant:* Perennial with slender much-branched rhizome. Stem usually single, leafy toward the base and often woody, with 1- to 2-scarious bracts, up to 20 cm. high. *Leaves:* Numerous, ovate to elliptic, crenulate to serrulate, rounded to obtuse at the base, acute at the apex, about 6 mm. long, on petioles as long or shorter than blades, dark green above, paler beneath. *Flowers:* Many, in one-sided rather dense raceme, erect in bud, drooping in anthesis; pedicels up to 8 mm. long; sepals triangular up to 1 mm. long; petals light greenish or white, up to 6 mm., broadly oval, each with 2 small tubercles at the base on the inner surface; anthers about 1.5 mm. long without tubes, pores large, terminal; style elongate, erect at anthesis, collar lacking; stigma peltate, 5-lobed. *Fruit:* Depressed-globose capsule up to 5 mm. in diameter.

HABITAT.—Moist coniferous forests, open forests, woods, and banks of wooded streams.


10 cm.
var. obtusata
a
6 mm
c
b
1 mm
var. secunda

One-sided wintergreen (*Pyrola secunda* L.)—*a*, single flower; *b*, anther; *c*, fruit.

RANGE.—Alaska, Yukon, British Columbia east to the Atlantic Coast, south to California and Mexico. Eurasia.

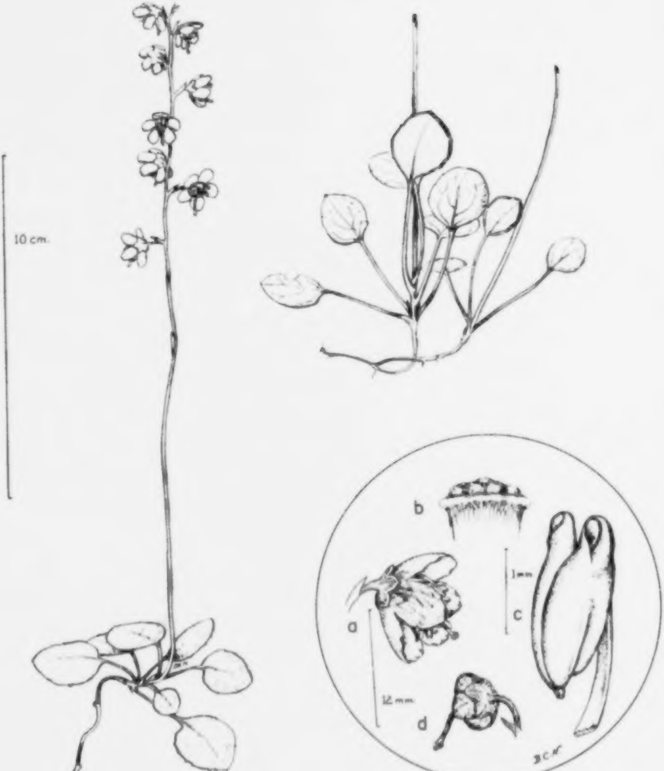


SEASON.—May to August.

DISTRIBUTION IN BRITISH COLUMBIA.—Widely scattered throughout the Province. Very rare on the Queen Charlotte Islands, with only one known locality..

COMMENTS.—This delightful little plant with its attractive foliage present all year round is one of the most common wintergreens in British Columbia. It is easily distinguished by the single flower scape which bears its blossoms on a one-sided or secund raceme, a character that gives the plant its specific name.

Var. *obtusata* Turch. differs from the main type in small growth, pale-green colour, blunt, more or less orbicular, smaller leaves and fewer (4–10) flowers. Some specimens, particularly those from northern British Columbia, are quite different in habit from the main type and give one the impression that they might belong to the main type and var. *obtusata*, sometimes creates difficulties in a distinct species. The occurrence of a transition form, between


10 cm.
b
1mm
c
a
12 mm
d
BCN

Greenish-flowered wintergreen (*Pyrola virens* Schweigg.)—*a*, single flower; *b*, stigma; *c*, stamen; *d*, fruit.

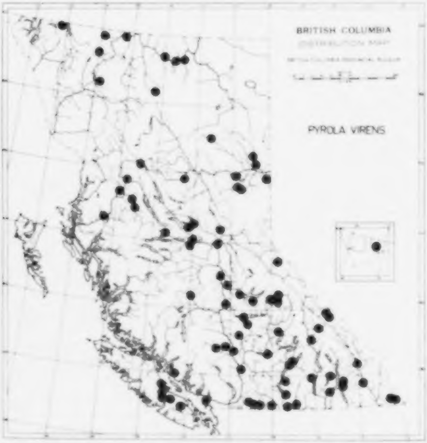
identification. A thorough study of distributional conditions might prove that var. *obtusata* is only a geographical race of *P. secunda.*

Pyrola virens Schweigg. Greenish Flowered Wintergreen

SYNONYMS.—*Pyrola chlorantha* Sw., *Pyrola chlorantha* var. *saximontana* Fern., *Pyrola virens* var. *saximontana* Fern., *Pyrola chlorantha* var. *paucifolia* Fern., *Pyrola virens* f. *paucifolia* Fern., *Pyrola chlorantha* f. *paucifolia* Camp.

OTHER COMMON NAMES.—Greenish pyrola, greenish wintergreen.

DESCRIPTION.—*Plant:* Perennial with long slender rhizomes and leafy sterile shoots; flowering stems usually single, up to 25 cm. tall and with 1 to few leaves at the base. *Leaves:* Orbicular to broadly-oval or sometimes broadly-ovate, rounded to obtuse at the apex, up to 2.5 cm. long, coriaceous, entire or lightly to prominently crenulate, usually exceeded by the petioles. *Flowers:* In racemes from few- to not more than 10-flowered, not secund; pedicels and linear-lanceolate bracts rather short and not longer than 8 mm.; sepals triangular, broader than long; petals pale



yellowish or greenish-white and veined with green, converging, broadly oblong up to 8 mm. long; anthers with very well developed straight tubes and terminal pores, colour of tubes much darker than the anther sacs; style curved, 5–8 mm. long; stigma lobed. *Fruit:* Depressed-globose capsule.

HABITAT.—Humus in coniferous forests, moist woods, occasionally in drier areas in open forests.

SEASON.—June to August.

RANGE.—Alaska, Yukon, British Columbia to Newfoundland, south to California. Eurasia.

DISTRIBUTION IN BRITISH COLUMBIA.—Widespread and occasionally very abundant, particularly in the Southern Interior. Rather rare on the Coast, indicating that it is more typically an Interior rather than a Coastal species.

COMMENTS.—This species is often classified as *Pyrola chlorantha* Sw. Confusion exists on account of the uncertainty of the date of publication of *P. virens.* Greenish flowered wintergreen is one of the smallest of our *Pyrolas,* and in appearance it might be confused with lesser wintergreen, *P. minor.* See the comments under *P. minor* concerning the characters separating these two species. This is a rather attractive plant with small, round, and thick leaves and a simple scape, which is usually naked or bearing but a single bract. A recent opinion recognizes *forma paucifolia* Fern., which differs from the species in having greatly reduced leaves and only a few (1–5) flowered racemes approaching the leafless form of this species, classified as *P. aphylla.* Generally speaking there is a noticeable variation, which is probably caused by the environment. The absence of localities, particularly in the north, on the distribution map does not necessarily indicate its rarity in these areas, but simply that it has been poorly collected there.

RHODODENDRON L.

The name of this genus, *Rhododendron,* comes from the Greek *rhodon* (rose) and *dendron* (tree), the ancient Greek name of *Nerium oleander.*

Evergreen or deciduous shrubs, rarely small trees, with glabrous, pubescent, or glandular twigs and buds with several to many imbricate scales. Leaves alternate, petiolled, entire, pubescent, or glabrous. Flowers showy, pedicelled, more or less irregular in terminal or lateral umbel-like clusters, sometimes solitary or few to several, in most cases from terminal buds. Perianth 5-merous; calyx foliaceous, persistent, very much reduced, and shallowly lobed; corolla campanulate to funnelform, conspicuous, regularly or commonly irregularly 5-lobed; stamens 5 or 10, sometimes more, with elongate filaments and short oval or oblong anthers, opening by 2 terminal pores; ovary superior, pubescent, 5-celled; style elongated and declined; stigma capitate or very shallowly lobed. Fruit a capsule septicidally dehiscent from top; seeds numerous, minute, wing margined.

This large and well-known genus has often been divided into two—*Rhododendron*, with evergreen leaves, and *Azalea*, which sheds its leaves in winter. Rhododendrons and azaleas are much planted for their beautiful flowers, and the evergreen species also for their foliage; they require, with few exceptions, a soil free from lime. Many hybrids which have originated in cultivation make the classification and determination of the garden forms difficult. At least 600 species are distributed throughout the colder and temperate regions of the northern hemisphere, also on the high mountains of southern Asia and Malaysia and extending to New Guinea and Australia. In North America, twenty-seven species occur, with the majority in the east and southeastern United States. None of them extends into Mexico. None of the species can rightly be called tropical. Those found in the tropical zones, as, for instance, the Malaya, New Guinea, and Phillipine species, occur at considerable elevation, where the conditions are temperate. Considering their abundance in northern Asia, it is surprising that there are so few in North America, where the conditions appear to be suitable for them. In countries where they are abundant, they occupy a similar position to the heaths or true heathers, monopolizing considerable areas so that few other plants are able to hold their own against them.

The economic uses of rhododendrons are not important, as some of the species possess bitter, astringent, and narcotic properties. Nevertheless, a decoction of *R. chrysanthemum* is employed in Siberia in the treatment of rheumatism and other affections of the joints and muscles, and the leaves of the same species are used in some parts of central Asia as a tea called "Tartarian tea."

Others like *R. ferruginum* are used in northern Italy for the preparation of anti-rheumatic linament. In North America, *R. maximum* is used occasionally as a home remedy for rheumatism. This particular species, which reaches considerable size, supplies close-grained, hard, heavy, strong wood, used for handles of tools. The roots are used in manufacture of tobacco pipes. It is worth while to mention that even now the dried leaves of *R. campanulatum* are used in India as snuff, and the leaves of *R. lepidotum* and *R. anthopogon* as stimulants. The Chinese use the leaves of various species to adulterate tea.

The rhododendron are widely used as favourite ornamentals, and to-day the hybridization of various species has led to a multi-million-dollar industry, as the beauty of the rhododendron in flower is scarcely surpassed by any other shrub. There is no need to add that the sight of true species in full bloom in their natural habitat is one long remembered by those fortunate enough to see them.

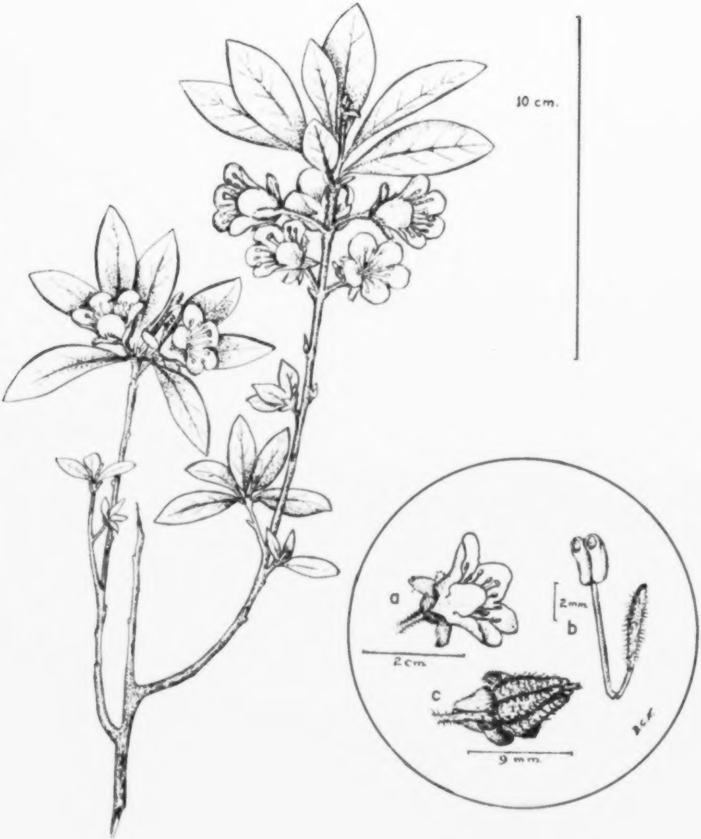
Three species are credited to British Columbia.

A. Leaves deciduous, not thick and leathery; corolla white ..... ***R. albiflorum***
AA. Leaves evergreen, leathery; corolla not white.
    Flowers rose-pink; leaves glabrous, 6–20 cm. long ..... ***R. macrophyllum***
    Flowers bright purple; leaves coriaceous, 1–2 cm. long ..... ***R. lapponicum***

Rhododendron albiflorum **Hook.**
White-flowered Rhododendron

SYNONYMS.—*Azalea albiflora* Kuntze, *Azaleastrum albiflorum* Rydb., *Cladothamnus campanulatus* Greene.

DESCRIPTION.—*Plant:* An erect slender-branched shrub 1–2 m. high with exfoliating bark; young twigs covered by coarse reddish hairs (same hairiness present on young leaves, bracts, and calyx). *Leaves:* Up to 8 cm. long, deciduous, thin, narrowly-


10 cm.
a
2mm
b
2cm
c
9 mm

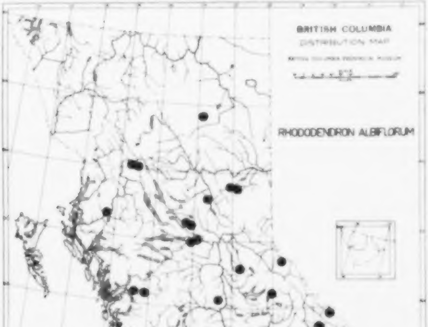
White-flowered rhododendron (*Rhododendron albiflorum* Hook.)—
a, single flower; *b*, stamen; *c*, fruit.

elliptic, usually pointed at both ends, green on the upper surfaces, lighter beneath, entire to undulate, covered with loose rather rusty hairs, on very short petioles. *Flowers:* Whitish in axillary clusters (1–4 per axil) of last year's leaves; pedicels slender, up to 1.5 cm. long, glandular-pubescent; calyx 5-parted to the base, the oblong-foliaceous ciliate divisions about half as long as the corolla; corolla broadly campanulate, up to 2 cm. long, the broad rounded lobes about equalling the tube; stamens 10, exserted, filaments densely hairy on the lower half; anthers unawned, oblong, opening by terminal pores; ovary long-hairy, 4–5-celled. *Fruit:* Ovate capsule, 6–8 mm. long.

HABITAT.—Wet places at high altitudes, mountain slopes near timber-line.

SEASON.—June to August.

RANGE.—British Columbia, Washington to Oregon and east to Montana.



DISTRIBUTION IN BRITISH COLUMBIA.—Widely scattered in the southern part of the Province, becoming very common in some areas as indicated in the distribution map. Occasional from 52° north to approximately 57° north. The most northern record of this species in our Province came from Fairy Lake, north of Pink Mountain, collected by J. A. Calder and I. Kukkonen (1960).

COMMENTS.—The white flowering rhododendron is noteworthy as being one of the largest and showiest flowering shrubs of our mountains. The white broadly campanulate flowers, instead of forming a terminal group as in most species, are in lateral clusters in groups of 1–4, beneath the whorls of the leaves. Broadly campanulate white flowers and deciduous leaves with loose rusty hairs are an unmistakable feature. It is common on shady, moist mountain slopes near timber-line, where it sometimes grows so thickly that climbers call it " mountain misery "!

The leaves of this rhododendron are reputed to be poisonous to live stock.

***Rhododendron lapponicum* (L.) Wahlenb. Lapland Rosebay**

SYNONYMS.—*Azalea lapponica* L., *Rhododendron lapponicum* Hook., *Rhododendron parvifolium* Maxim., *Rhododendron lapponicum β. parvifolium* Herder.

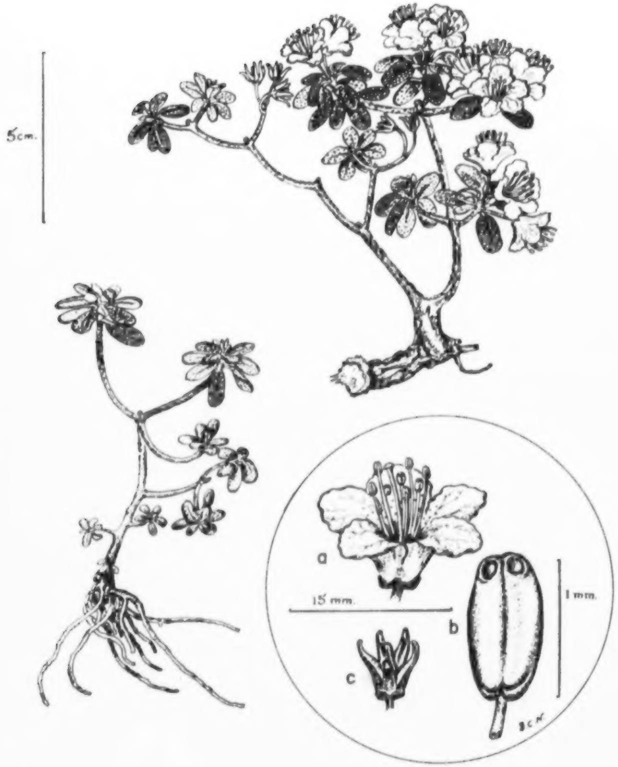
DESCRIPTION.—*Plant:* Dwarf, prostrate shrub, freely branched, 5–30 cm. tall. *Leaves:* Evergreen, oval or elliptic, dark green and rugose above, densely covered with brownish scales beneath, 1–2 cm. long; petiole rather short, 2–3 mm. long. *Flowers:* Few, in a terminal umbel-like cluster; calyx foliaceous, persistent, scurfy and very much reduced; corolla royal purple, 1–2 cm. broad, campanulate; stamens 5–10; filaments purple, glabrous, exserted; anthers rather short, oval, opened by two terminal pores. *Fruit:* Ovoid capsule up to 8 mm. long with erect fruiting pedicels.

HABITAT.—Rocky alpine slopes and cliffs, alpine barrens.

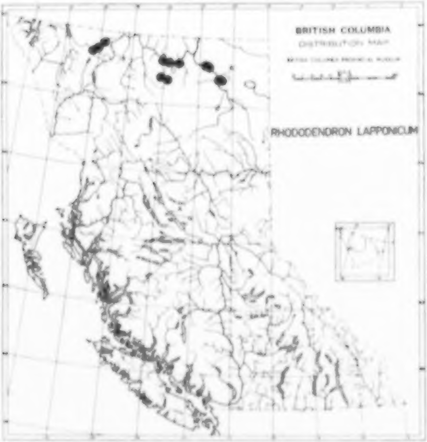
SEASON.—May to June.

RANGE.—Alaska, Yukon, British Columbia; also the Arctic regions of North America and Eurasia.

DISTRIBUTION IN BRITISH COLUMBIA.—Restricted to the Northeast and Northern Interior of the Province and abundant in many areas along the Alaska Highway, particularly around Summit Pass and Muncho Lake. Occasional in the Cassiar Mountains.


5cm.
a
15 mm.
b
1 mm.
c

Lapland rosebay (*Rhododendron lapponicum* (L.) Wahlenb.)—
a, single flower; *b*, anther; *c*, fruit.

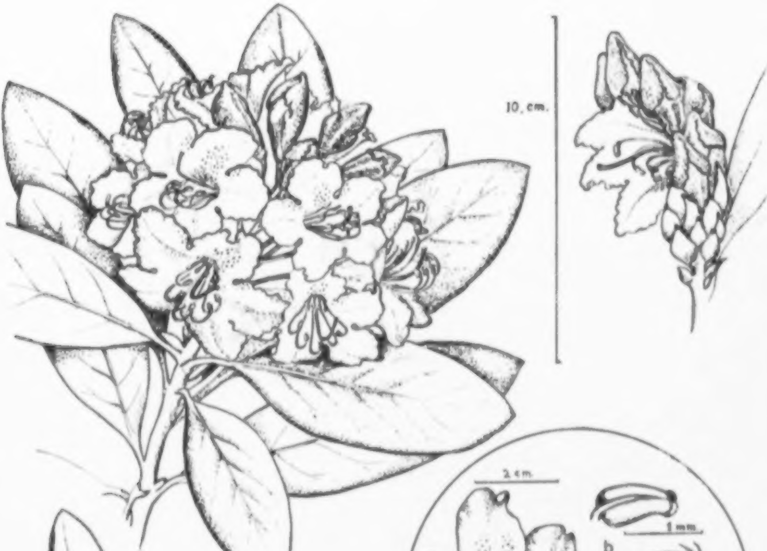


COMMENTS.—Lapland rosebay is a showy, depressed, matted, dwarf shrub with scurfy twigs and leaves which are coriaceous, evergreen, and densely lepidote, especially beneath. Deep purple, aromatic flowers arranged in terminal umbel-like clusters form extensive splashes of colour in dry rocky tundra. This species was considered quite rare in our Province, but recently a number of localities were added, as can be seen in the distribution map. It is widely distributed throughout the Arctic regions of North America and Eurasia.

***Rhododendron macrophyllum* G. Don.**
California Rhododendron

SYNONYMS.—*Rhododendron californicum* Hook., *Hymenanthes macrophyllum* Copeland.

DESCRIPTION.—*Plant:* Evergreen shrub up to 8 m. tall with glabrous twigs, puberulent when young. *Leaves:* Thick and coriaceous, glabrous, entire, oblong-elliptic, up to 20 cm. long, dark green above, paler beneath, on 1–2-cm.-long petioles. *Flowers:* Few to many, in terminal umbel-like clusters; pedicels up to 5 cm.


10. cm.
2 cm.
1 mm
a
b
c
6 mm
d
2 cm.
BCM

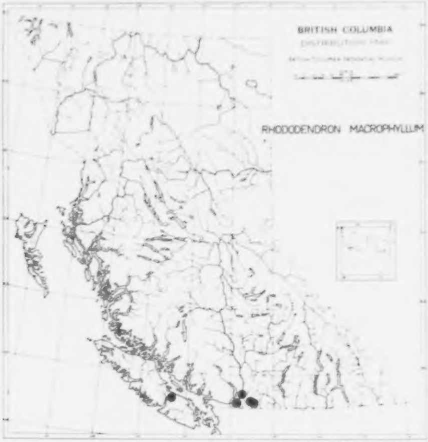
California rhododendron (*Rhododendron macrophyllum* G. Don.)—*a*, single flower; *b*, anther, showing front and back view; *c*, cross-section of ovary; *d*, fruit.

long, glabrous; calyx minute, very shallowly lobed; corolla pale rose to rose-purple, spotted red-brown, broad-campanulate, deeply lobed, 3–4 cm. long and up to 5 cm. across; stamens 10, unequal, pubescent at the base, the lower one exserted; anthers oblong, red-brown, up to 3 mm. long; ovary white-silky. *Fruit:* Woody capsule up to 2 cm. long, rusty-puberulent and glandular.

HABITAT.—Moist woods in shade, ravines, and openings in shady forests.

SEASON.—May to June.

RANGE.—In the Cascades, from British Columbia through Washington, into Oregon and Northern California.



DISTRIBUTION IN BRITISH COLUMBIA.—Very rare and known only from a few localities—namely, the Chiliwack Valley, where it was collected by W. Spreadborough (1906), Hope, the Skagit Valley, and Manning Park. One locality known on Vancouver Island. (*See* Comments.)

COMMENTS.—This species has commonly been called "*R. californicum,*" but this name is no longer valid.

Known also by the common name of California rosebay, the California rhododendron is one of the Pacific region's most charming shrubs; it is regarded by many as the most handsome plant indigenous to the Pacific Coast. With richly coloured flowers, backed by dense green foliage, the shrub provides a striking combination of delicate and brilliant tones. Probably for this reason it was chosen as the official flower of the State of Washington.

It is most abundant in the Skagit Valley, bordering Washington, and also along the Hope–Princeton Highway between Mile 22 and Mile 24 from Hope. G. M. Dawson, an early geologist, reported them on mountains above the Lower Fraser Canyon. Another interesting record comes from Vancouver Island, with a locality some miles southwest of Parksville. T. Greig, a well-known grower from Royston, Vancouver Island, who collected *R. macrophyllum* in this locality, remarks that "the plants were growing in almost pure gravel amongst the fringe of coniferous trees, surrounding a small lake. They were mostly very tall and gawky, reaching up for light, in many instances to 20 feet or more. None had developed into the tidy rounded specimens such as can be seen in the Skagit Pass." It has also been reported from a few other localities on Vancouver Island and the mainland, but none of these records can be validated as the actual specimens were not seen and checked.

Since 1947 California rhododendron has been on the list of plants protected by the Provincial Government. The Act reads: "No person shall pick, cut down, dig or pull up, or knowingly injure or destroy in part or in whole, whether in blossom or not, any rhododendron on land of any private owner, without the consent of the private owner being first obtained, or on land belonging to the Crown in right of the Province or to a municipality. Every person who contravenes any provision of this Act shall be liable, on summary conviction, to a fine not exceeding twenty-five dollars."

It is frequently cultivated west of the Cascades and probably superior to many of the Asiatic species for cultivation in our climate.

VACCINIUM L. (BLUEBERRY, BILBERRY, HUCKLEBERRY)

Vaccinium is the Latin name for blueberry. Erect, depressed or creeping, small to medium-sized shrubs with scaly buds. Leaves simple, alternate, deciduous to evergreen, thin to leathery, entire or serrulate, usually small. Flowers perfect, axillary, solitary or clustered, pedicellate and commonly bracteate; calyx 4- to 6-lobed; calyx tube adnate to the ovary for all or the greater part of its length, deciduous or persistent, the limb lobed or entire, spreading or appressed to the corolla; corolla globose or ovoid or more or less urceolate, gamopetalous, deciduous; stamens twice as many as the corolla lobes, included; filaments glabrous or pubescent; anthers 2-celled, dorsally awned or awnless, dehiscent by pores at the top of short to prominent tubes; ovary inferior; style slender, usually surpassing the stamens. Fruit a berry, red, blue, or blue-black, with or without a bloom, many-seeded.

A genus of approximately 200 species in the northern hemisphere, mostly of cooler or mountainous areas of all continents except Australia. Fourteen species occur in British Columbia.

*A. Shrubs with evergreen leaves.
  B. Low mat-forming shrubs with creeping branches; leaves revolute with dark spots beneath .... *V. vitis-idæa* subsp. *minus*
  BB. Tall erect shrubs; leaves distinctly serrate without dark spots beneath.
      Leaves thick, coriaceous; branches brown, rigid and pubescent; fruit black .... *V. ovatum*
      Leaves subcoriaceous; branches green, slender and glabrous; fruit red (juvenile form of the species only; mature form has leaves deciduous and entire) .... *V. parvifolium*
AA. Shrubs with deciduous leaves.
  B. Leaves entire or nearly so.
    C. Branches terete (circular in cross-section); flowers in clusters, always arising from a scaly bud, from wood of the previous season; calyx deeply lobed.
      D. Branches strongly pubescent; leaves very hairy, especially beneath; anthers awnless; filaments pubescent .... *V. myrtilloides*
      DD. Branches glabrous to minutely pubescent; leaves glabrous; anthers awned; filaments glabrous.

Leaves thick (at maturity), prominently reticulate-veiny beneath, at least half as broad as long; fruit more than 6 mm. broad .... *V. uliginosum*

Leaves rather thin (at maturity), obscurely veiny beneath, less than half as broad as long; fruit less than 6 mm. broad .... *V. occidentale*

CC. Branches slightly to sharply angled, glabrous to minutely puberulent; flowers solitary, arising from wood of the current season; calyx shallowly lobed.

D. Branches green; sharply angled; fruit bright red .... *V. parvifolium*

DD. Branches brown, reddish, yellowish or greenish-brown; less obviously angled; fruit dark blue or reddish-black.

Flowers appearing with the leaves; leaves with scattered rudimentary glands along the midrib on the lower surface; corolla depressed-globose, bronzy-pink; style exserted; pedicels straight and enlarged toward the calyx .... *V. alaskaense*

Flowers appearing before the leaves; leaves without rudimentary glands (glabrous); corolla urn-shaped, pinkish; style included; pedicels curved but not enlarged toward the calyx .... *V. ovalifolium*

BB. Leaves serrate.

C. Leaves obovate to oblanceolate, with most of the leaf tissue above the middle, seldom acuminate at the apex and typically attenuate at the base; fruit blue to black with a bloom.

Leaves oblanceolate, bright green on both sides (not glaucous), strongly reticulate beneath and serrulate from the tip to the middle; corolla narrowly urn-shaped; fruits on recurved pedicels .... *V. caespitosum*

Leaves obovate, greyish or bluish beneath (glaucous) and serrulate from the tip to half or two-thirds of their length; corolla subglobose; fruits on erect pedicels .. *V. deliciosum*

CC. Leaves mostly ovate, elliptic or oblong-ovate, with most of the leaf tissue below the middle, seldom obtuse at the apex, and cuneate or obtuse at the base; fruit red or purplish-black without a bloom.

D. Branches herbaceous, distinctly green or greenish and sharply angled; leaves small (1–3 cm. long), reticulate-veiny.

Shrubs typically " broomy " with fine and delicate glabrous branches; leaves sharply serrulate, up to 1.5 cm. long; fruit red .... *V. scoparium*

Shrubs coarser, not "broomy," with the branching habit more open; branches thicker and usually puberulent; leaves sharply serrulate, larger, up to 3 cm. long; fruit purplish-black .... *V. myrtillus*

DD. Branches typically woody, not green, from subterete to angled; leaves large, up to 5 cm. long, obscurely veiny.

Leaves globular, often acute or even obtuse, but not acuminate, finely serrulate, up to 3.5 cm. long; corolla globular-urceolate, as broad as long; fruit 6–8 mm. broad .... *V. globulare*

Leaves ovate or oblong-ovate, destinctly acuminate, sharply serrate or coarse serrulate, up to 5 cm. long or even longer; corolla ovoid-urceolate, longer than broad; fruit 8–10 mm. broad .... *V. membranaceum*

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*The above key and following description of some of the species adapted with changes from Mueller-Dombois, Dieter (1956).

Vaccinium alaskaense Howell — Alaska Blueberry

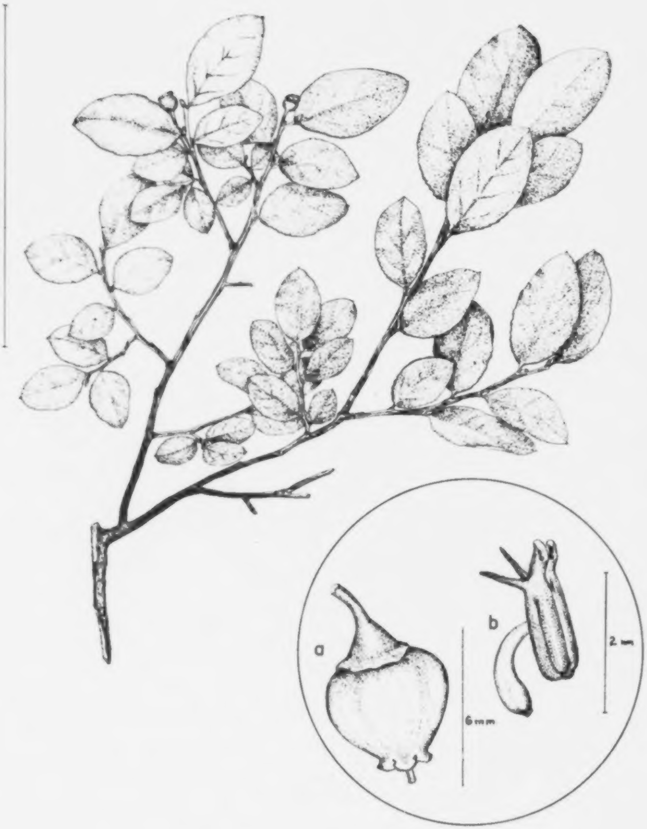
SYNONYMS.—*Vaccinium ovalifolium* Bong., *Vaccinium oblatum* Henry.

OTHER COMMON NAME.—Blueberry.

DESCRIPTION.—*Plant:* Erect deciduous shrub up to 1.5 m. tall with the bark on old branches greyish and on young twigs yellow-green, slightly to strongly angled, glabrous or very finely puberulent. *Leaves:* Ovate to oval, up to 6 cm. long, entire or very inconspicuously serrulate, very seldom obtuse at the apex, on very short petioles, dark green above, paler, more or less glaucous, sparsely glandular-hirsute on the midnerve. *Flowers* (appear when the leaves are expanding): 5-merous, solitary in the axils of leaves or leaf-like bracts; calyx obscurely lobed or undulate; corolla bronzy or pinkish-green, globular to depressed, urceolate, up to 8 mm. long; pedicels nodding in flower, erect in fruit; filaments glabrous, shorter than the awned anthers with terminal pores; style slightly exserted. *Fruit:* Globose to pyriform berry, bluish-black to reddish-black with or without a bloom, up to 12 mm. broad, edible but rather acid.

HABITAT.—On raw humus in moist coniferous forests along the coast.

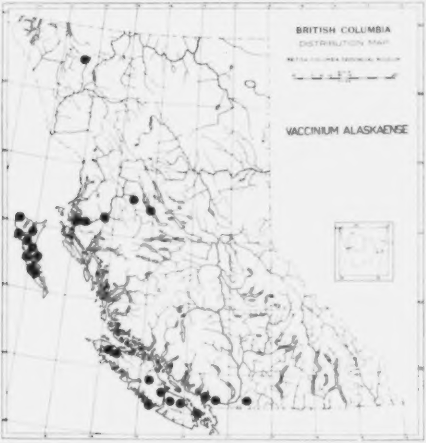
SEASON.—May to June.


10 cm
a
b
2 mm
6 mm

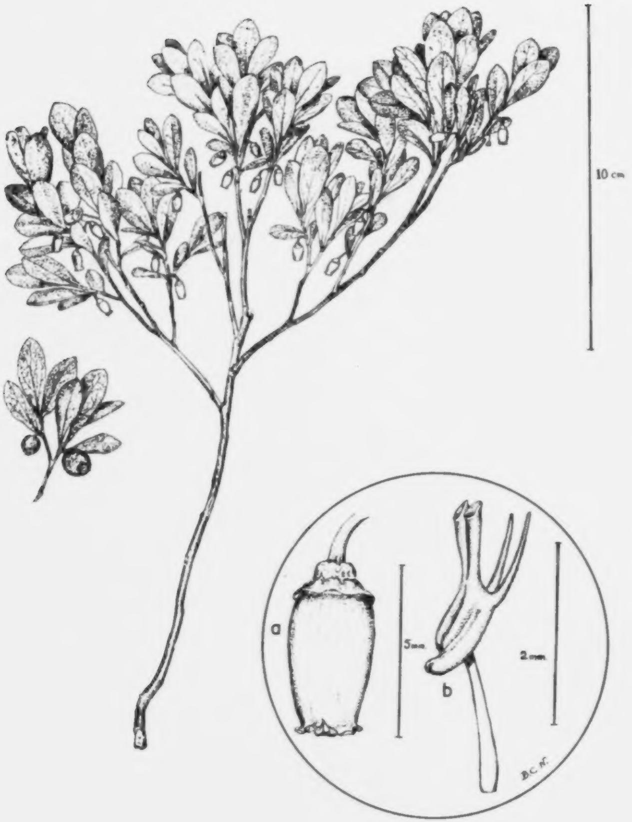
Alaska blueberry (*Vaccinium alaskaense* Howell)—*a*, single flower; *b*, stamen.

RANGE.—From Alaska to Oregon along the coast.

DISTRIBUTION IN BRITISH COLUMBIA.—Typically a coastal species, being particularly abundant on Vanvouver Island and the Queen Charlotte Islands. The limited number of localities on the Coast does not necessarily indicate rarity, and undoubtedly a number of localities will be added.



COMMENTS.—Alaska blueberry is difficult to identify as it might easily be confused with two other species—namely, *Vaccinium ovalifolium* Smith, oval-leaved blueberry, and *Vaccinium parvifolium* Smith, red huckleberry. The leaves in Alaska blueberry superficially resemble those of oval-leaved blueberry, but in general are much larger. The flower is rather like that of the red huckleberry, but again much larger, and the fruit combines the characters of both species. Camp (1942 and 1945), an authority on the genus *Vaccinium,* says after studying the relationship between these three species, that he has come to the conclusion that *V. alaskaense* is a polyploid derived from *V. ovalifolium* and *V. parvifolium.* Hulten (1948) expects a hybrid between *V. alaska-*


10 cm
a
5mm
b
2 mm
B.C.K.

Dwarf blueberry (*Vaccinium cæspitosum* Michx.)—*a*, single flower; *b*, stamen.

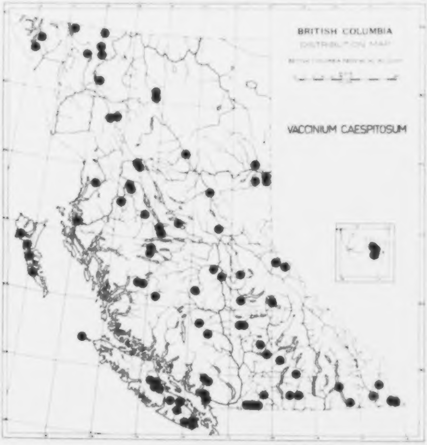
ense and *V. ovalifolium*. It is beyond the scope of this handbook to discuss in detail the status and characters separating these species, which is a complicated problem for the layman. However, those interested will find reference for this subject in the bibliography.

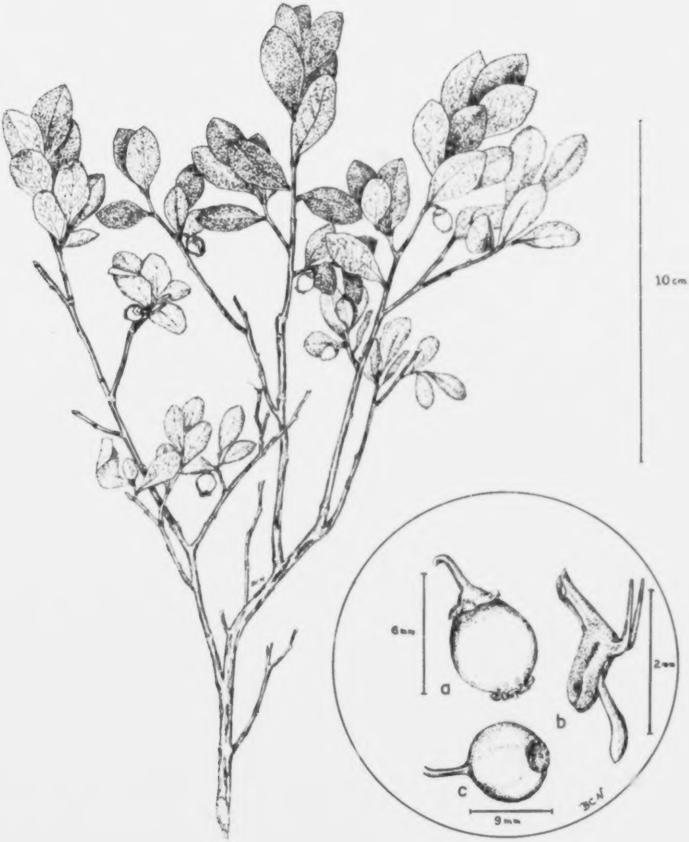
Vaccinium cæspitosum Michx. **Dwarf Blueberry**

SYNONYMS.—*Vaccinium cæspitosum* var. *cuneifolium* Nutt., *Vaccinium cæspitocum* var. *angustifolium* Gray, *Vaccinium cæspitosum* var. *arbuscula* Gray, *Vaccinium arbuscula* Merriam, *Vaccinium nivictum* Camp., *Vaccinium paludicola* Camp.

OTHER COMMON NAME.—Huckleberry.

DESCRIPTION.—*Plant:* Depressed or tufted dwarf shrub up to 30 cm. tall, spreading widely by root-stocks, with usually puberulent or sometimes glabrous and somewhat angled, yellowish-green to reddish branches. *Leaves:* Obovate or oblanceolate, acute to obtuse at the apex nearly sessile, tapered to the base, usually less than 25 mm. long, serrulate in upper half, prominently reticulate-veined, rather thin, bright green on both sides, finely glandular on the lower surface. *Flowers:* Single, in the axils of leaves, nodding on short




10 cm
6 mm
a
b
2 mm
c
9 mm
BCN

Cascade bilberry (*Vaccinium deliciosum* Piper)—*a*, single flower; *b*, stamen; *c*, fruit.

recurved pedicels; perianth 5-merous; calyx lobes very short and broad, the upper portion deciduous from the fruit; corolla narrowly tubular-urceolate to oblong-ovoid, about twice as long as broad, whitish to pink, up to 6 mm. long; filaments glabrous, longer than the anthers; anthers awned with slender terminal tubes. *Fruit:* Globose berry, light blue to blackish-blue with a pale bloom, about 6–8 mm. broad, sweet and edible.

HABITAT.—Wet meadows, mountain slopes, moist rocky ridges, and alpine tundra.

SEASON.—June to August.

RANGE.—Alaska, British Columbia to Northern California, and across the continent to Newfoundland.

DISTRIBUTION IN BRITISH COLUMBIA.—Common in suitable habitats throughout British Columbia. Collections indicate that it is not only widespread, but also very abundant in many areas above timber-line.

COMMENTS.—One of the most abundant species in the Province, it is always found on wet meadows and alpine slopes in our mountains. This small and delicate much-branched shrub, with its rather thin leaves, bright green on both sides, uniformly and densely serrulate, is easy to identify. The solitary pinkish or whitish flowers in the axils of leaves and blue to blue-black glaucous berries, sweet and of good flavour, are an additional aid in identification.

This is rather a variable species, and sometimes it is separated into two or three additional taxa, but in the opinion of this author it is difficult to find the demarcation lines between them, as the characters are seemingly intangible. No doubt there are certain ratio differences which require further studies.

***Vaccinium deliciosum* Piper** **Cascade Bilberry**

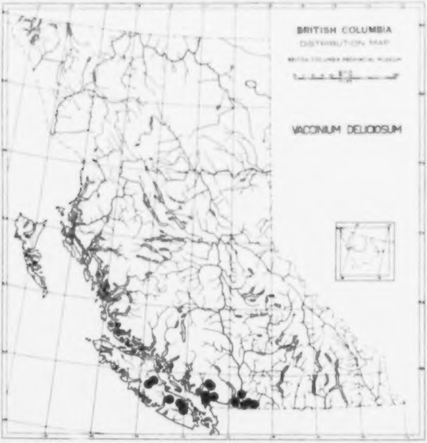
OTHER COMMON NAMES.—Blue huckleberry, Rainier bilberry, blue-leaved huckleberry.

DESCRIPTION.—*Plant:* Low, up to 40 cm. tall, densely branched and often matted shrub, glabrous throughout, with branches greenish-brown inconspicuously angled. *Leaves:* Obovate to oblanceolate or rarely elliptic, acute to obtuse at the apex, mostly cuneate at the base, glabrous, dull green above, pale green and not glandular beneath, obscurely to distinctly serrulate from the tips to mid-length or below, with margin often minutely revolute, up to 3 cm. long (occasionally longer) and one-third to one-half as broad. *Flowers:* 5-merous, single in the axils of leaves, nodding; calyx shallowly 5-lobed, the upper portion deciduous from the fruit; corolla pinkish, up to 6 mm. long, globular-urceolate; filaments short, glabrous; anthers awned, with slender terminal tubes. *Fruit:* Globose berry, blue-black with a bloom up to 8 mm. in diameter, sweet and delicious.

HABITAT.—Higher altitudes in subalpine forest along the coast.

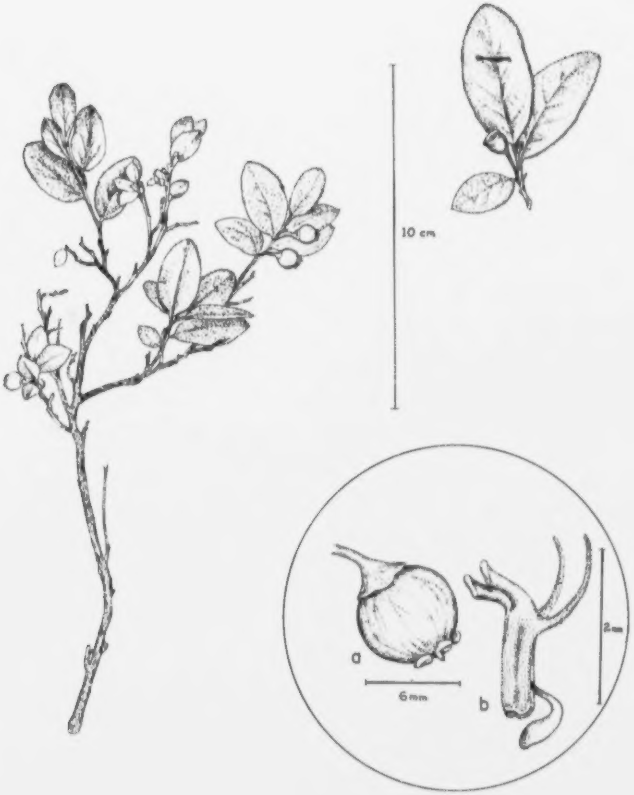
SEASON.—End of May to the middle of July.

RANGE.—West of the Cascades, British Columbia to Oregon.



DISTRIBUTION IN BRITISH COLUMBIA.—Coastal and restricted to the southern Coast. Well defined in its distribution.

COMMENTS.—This higher-altitude species of subalpine forests and alpine zones of the Coast Range is easily confused with *Vaccinium cæspitosum.* According to Piper (1915), "In habit and


10 cm
a
6mm
b
2mm

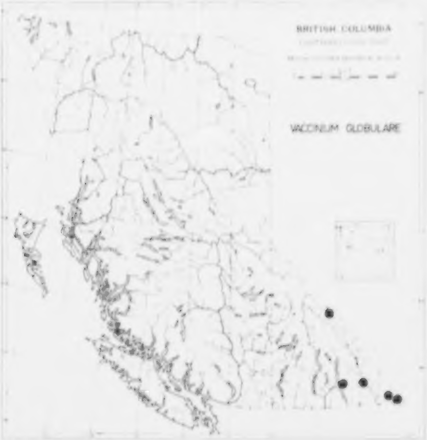
Blue huckleberry (*Vaccinium globulare* Rydb.)—*a*, single flower; *b*, stamen.

fruit it resembles *V. cæspitosum*, but in floral characters, *V. ovalifolium*." It is rather a problematic species of intermediate characters, and in the opinion of the present author should be treated as a variety or subspecies of *V. cæspitosum.* It deserves further investigation and clarification of its taxonomic status.

The specific name *deliciosum* is in reference to the sweet taste of the berries.

Vaccinium globulare **Rydb.** **Blue Huckleberry**

SYNONYM.—*Vaccinium membranaceum* var. *rigidum* (Hook.) Fern.



DESCRIPTION.—*Plant:* A medium-sized shrub up to 1 m. tall with young branches glabrous, greenish-yellow, slightly angled, and older covered by greyish shredding bark. *Leaves:* Globular to more or less oblong-obovate, rounded to acute at the apex and cuneate at the base, finely serrulate most of the length, varying from membranaceous to firm, green and glaucous, paler and glandular on the lower surface, up to 4 cm, or even sometimes 5 cm. long, usually about half as broad. *Flowers:* Single, in the axils of the leaves, on recurved slender pedicles; perianth 5-merous; calyx obscurely lobed, with the limbs entire or merely undulate with the basal portion persistent on the fruits; corolla pale pinkish or yellowish-white, depressed, globose or globose-urceolate, up to 6 mm. long; filaments glabrous, shorter than awned anthers with slender terminal tubes. *Fruit:* Globular berry, dark purple, without a bloom, about 6–8 mm. in diameter, edible and sweet.

HABITAT.—Coniferous open forests, in the mountains at lower elevations.

SEASON.—June to July.

DISTRIBUTION IN BRITISH COLUMIA.—Confined to a small area in the extreme Southeast Interior of the Province, being most abundant in the Flathead Valley.

COMMENTS.—This species is very closely related to *V. membranaceum* and mentioned by some authors as a synonym to *V. membranaceum*. However, several other authorities maintain it as a distinct species. According to Camp (1942), the main morphological difference is confined to the leaves. The leaves of *V. membranaceum* are larger, often with conspicuous acuminate apices, a characteristic which occurs seldom in *V. globulare*. Also, the leaf-margin is more sharply serrate in *V. membranaceum*. Other characters, such as corolla, are very problematic. In the opinion of the present author, *V. globulare* should be studied carefully as its specific rank appears to be problematic.

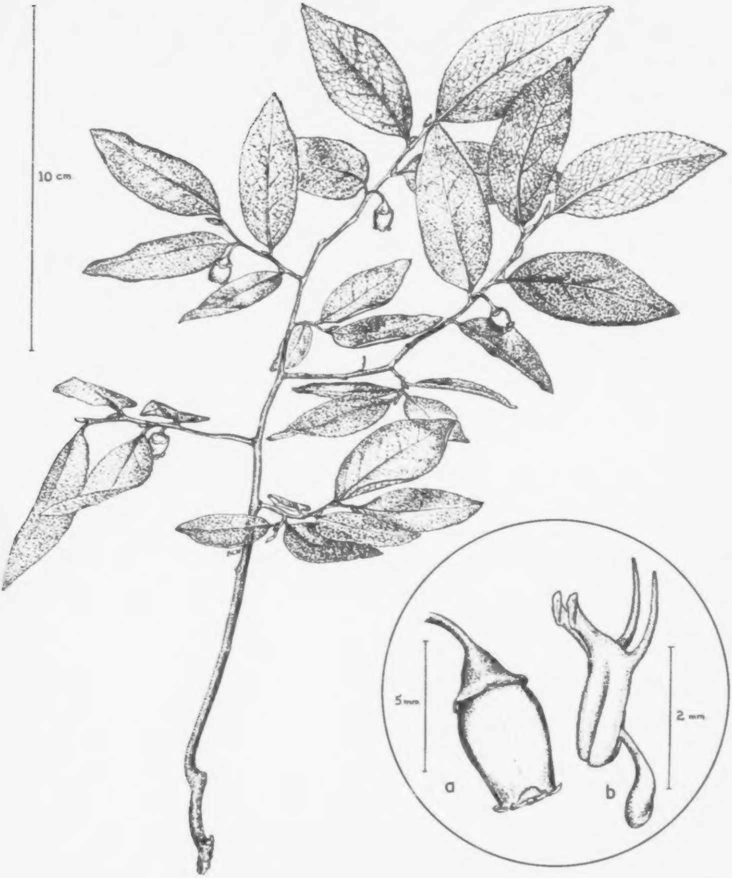
Vaccinium membranaceum Dougl. ex Hook.

Mountain Bilberry

SYNONYMS.—*Vaccinium myrtillus* Hook., not L., *Vaccinium myrtillus* var. *macrophyllum* Hook., *Vaccinium macrophyllum* (Hook.) Piper.

OTHER COMMON NAMES.—Twin-leaved huckleberry, blue huckleberry, mountain huckleberry.

DESCRIPTION.—*Plant:* Densely branched, erect, coarse shrub up to 2 m. tall with young branches glabrous, yellow-green, somewhat angled, with greyish shredding bark on old branches. *Leaves:* Ovate to elliptic-oblong, pointed, rounded-acute at the base, sharply


10 cm
5 mm
2 mm
a
b

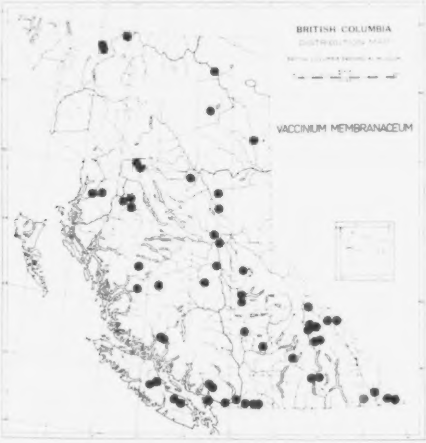
Mountain bilberry (*Vaccinium membranaceum* Dougl. ex Hook.)—
a, single flower; *b*, stamen.

serrate or coarse, serrulate, glandular, and paler on the lower surface, obscurely veiny and not lustrous, up to 6 cm. long. *Flowers:* Single, in the axils of leaves; perianth 5-merous; calyx shallowly lobed; corolla ovoid-urceolate, creamy-pink, up to 6 mm. long; filaments glabrous, short, shorter than the anthers; anthers awned. *Fruit:* Globose, purplish-black berry without a bloom, up to 10 mm. in diameter, edible and of good flavour.

HABITAT.—Mountain slopes, dry sites in coniferous forests.

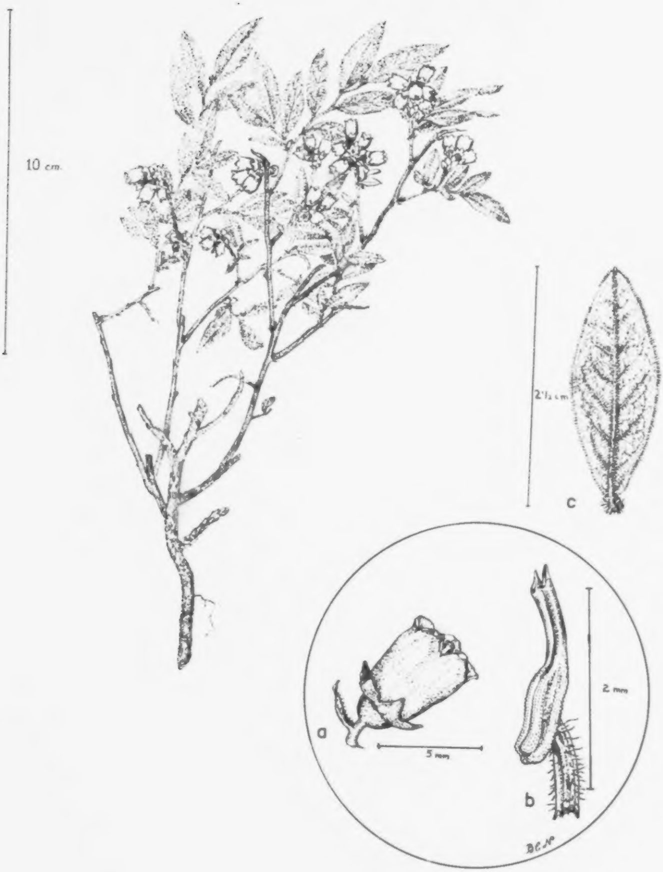
SEASON.—May to June.

RANGE.—British Columbia, Alberta, south to Northern California, eastern Idaho and Montana.



DISTRIBUTION IN BRITISH COLUMBIA.—Distributed throughout the Province, being most abundant in the Southeast Interior. Rather rare in the extreme north Coast. Not known from the Queen Charlotte Islands and Haines Cut-off.

COMMENTS.—In appearance it resembles *V. globulare*, blue huckleberry, and there are some specimens which admittedly are difficult to separate from that species. In general *V. membranaceum*


10 cm.
2½ cm
c
a
5 mm
b
2 mm
BCN

Velvet-leaf blueberry (*Vaccinium myrtilloides* Michx.)—*a*, single flower; *b*, stamen; *c*, single leaf.

is a coarser shrub than *V. globulare*, having larger leaves, tending to be ovate and often with conspicuously acuminate apices, a character seldom present in *V. globulare*. The shape of the leaves and the presence of the marginal serration are the most dependable separating characters.

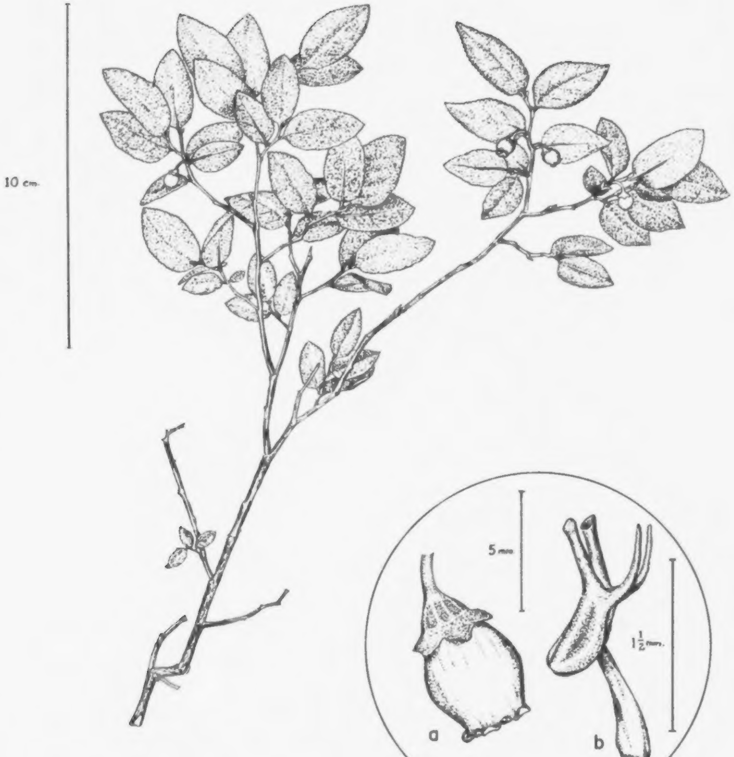
Vaccinium myrtilloides **Michx.** **Velvet-leaf Blueberry**

SYNONYMS.—*Vaccinium canadense* Kalm ex Rich., *Vaccinium pennsylvanicum* var. *myrtilloides* (Michx.) Fern., *Cyanococcus canadensis* Rydb.

OTHER COMMON NAMES.—Canada blueberry, blueberry, sour-top blueberry.

BRITISH COLUMBIA
DISTRIBUTION MAP
VACCINIUM MYRTILLOIDES

DESCRIPTION.—*Plant:* Deciduous rather low shrub up to 40 cm. high, growing in dense colonies, with terete and pubescent branches, young ones very dense, velvety pubescent. *Leaves:* Thin, entire, and softly pubescent, green, elliptic to oblong-lanceolate, up to 4 cm. long in maturity. *Flowers:* 5-merous in short clusters, terminating the branchlets (flowers expanding when the leaves are


10 cm.
5 mm
1½ mm.
a
b

Low bilberry (*Vaccinium myrtillus* L.)—*a*, single flower; *b*, anther.

half grown), on pedicels shorter than the corolla, greenish-white or tinged with pink, broadly cylindro-campanulate, up to 5 mm. long; filaments compressed, pubescent; anthers awnless. *Fruit:* Berry, up to 10 mm. in diameter, blue with a heavy bloom, rarely whitish, edible and sweet.

HABITAT.—Dry bogs, shady woods, and wooded rocky outcrops.

SEASON.—June to July.

RANGE.—British Columbia, Alberta, Saskatchewan, Northwest Territories, to Newfoundland; south to Montana, Indiana, Ohio, and West Virginia.

DISTRIBUTION IN BRITISH COLUMBIA.—Confined to Southeast Interior and Central Interior. Occasional in Northeast. Locality records around Vancouver came from peat bogs on Lulu Island and in Burnaby. These records should be accepted with caution as there is a probability that these plants were introduced there for their fruit.

***Vaccinium myrtillus* L.** **Low Bilberry**

SYNONYM.—*Vaccinium oreophilum* Rydb.

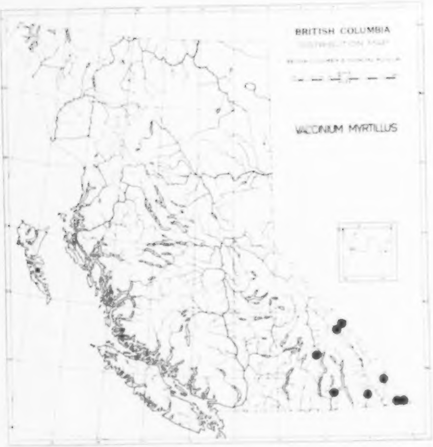
DESCRIPTION.—*Plant:* A low, erect, slender branched shrub up to 30 cm. tall, with strongly angled, greenish to greenish-brown branches, usually puberulent in the grooves. *Leaves:* Ovate to oval, up to 3 cm. long, sharply serrulate, acute or obtuse at the apex, glabrous, light green, strongly veiny with prominent midrib on the lower surfaces. *Flowers:* Single in the axils, on nodding pedicels; perianth 5-merous; calyx very shallowly lobed, nearly obsolete; corolla pinkish, ovoid-urceolate, about 5 mm. long; filaments glabrous; anthers awned, with terminal tubes equalling the pollen sacs. *Fruit:* Globose berry, dark red to blue-black without a bloom, to about 4–8 mm. in diameter, edible and sweetish.

HABITAT.—High altitudes where moist condition prevails.

SEASON.—June to July.

RANGE.—Alberta to New Mexico, west to British Columbia, and on the east side of the Cascades to Washington. Eurasia.

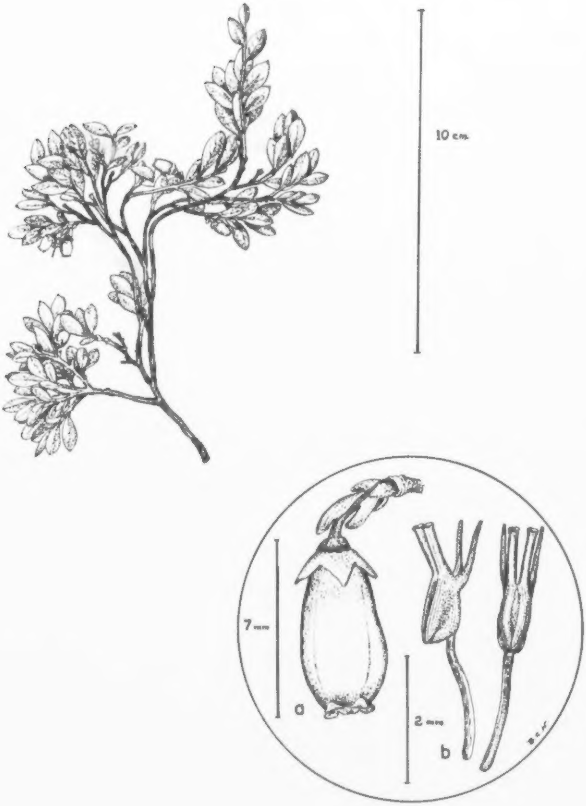
DISTRIBUTION IN BRITISH COLUMBIA.—Very similar to *V. globulare* in distribution and restricted to the Southeast Interior.



COMMENTS.—Low bilberry is superficially similar to grouseberry (*V. scoparium*), from which it is separated by its more open habit (not broomy) and by its branches, which usually have puberulent grooves. As a rule the leaves of the low bilberry are larger, as is also the case with the flowers. The berries, which are bright red in grouseberry, in this species are very dark red to bluish. Generally speaking the shrub has less numerous branches, mostly puberulent.

The layman may find this species very confusing and difficult to separate from *V. scoparium*, but this is understandable as this genus is very complicated and the characters separating the species are so close that it is rather difficult to make clear-cut divisions between the species.

It appears often in literature as *V. oreophilum*, but Camp (1942) states that Rydberg's specimens, which he used for describing *V. oreophilum*, were rather *V. globulare*. It is beyond the scope of this handbook to enter into further discussion of the nomenclature.


10 cm
7 mm
a
2 mm
b

Western blueberry (*Vaccinium occidentale* A. Gray)—*a,* single flower; *b,* two views of anther.

Vaccinium occidentale A. Gray **Western Blueberry**

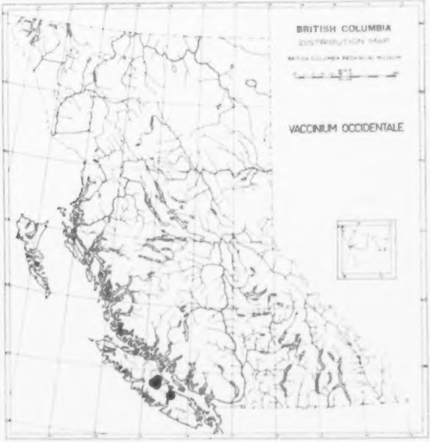
Other Common Names.—Western huckleberry, western bilberry.

Description.—*Plant:* Low, up to 50 cm. tall, rather rigid, erect, abundantly branched shrub with glabrous terete branches. *Leaves:* Rather thin, mostly oblanceolate or obovate, entire, green and pale on both surfaces, or glaucescent beneath, not strongly reticulate on the lower surfaces, mostly acute at the apex, usually less than half as broad, up to 2 cm. long. *Flowers:* 1 or 2, occasionaly up to 4 per axil, arising from a scaly bud; calyx 4–5-lobed, the lobes deltoid, acute, about 1 mm. long; corolla shallowly 4–5-lobed, the lobes reflexed in anthesis, pinkish, urceolate-campanulate, up to 6 mm. long; filaments glabrous; anthers awned, with rather long terminal tubes equalling the pollen sacs. *Fruit:* Globose berry, up to 6 mm. in diameter, blue to black, glaucous (with a bloom), sweet, but not of the best quality.

Habitat.—Sphagnum bogs, muskeggy wet meadows.

Season.—June to July.

Range.—British Columbia, east of the Cascades, to California, east to Montana, Utah, and Nevada.



DISTRIBUTION IN BRITISH COLUMBIA.—Known only from Vancouver Island, where it occurs on the Forbidden Plateau and Mount Mark near Alberni.

COMMENTS.—*Vaccinium occidentale* is very similar to *V. uliginosum* and is rather a problematic species. Differences separating these species are confined to the size of the fruit, shape of the leaves and veination, as these seem to be the most distinctive characters in division of the species. Fernald (1923) states that *V. occidentale* simulates very much the European *V. uliginosum.* Hulten (1948) is of the opinion that *V. occidentale* represents a narrow-leaved form of *V. uliginosum.* According to other authorities (Camp (1945), Hitchcock (1959)), *V. occidentale* is a distinct species.

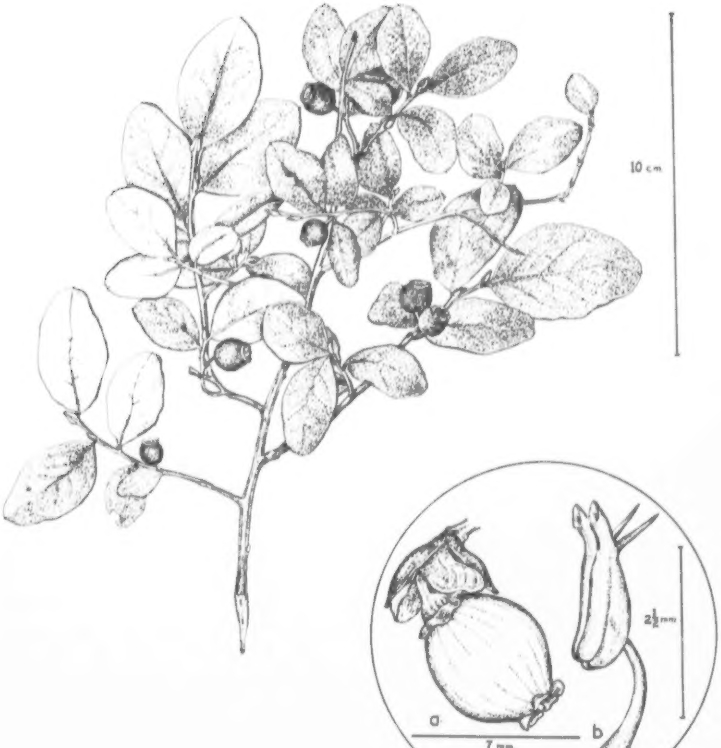
The characters separating them appear to be rather weak, and it would seem more appropriate to consider *V. occidentale* as a subspecies or variety of *V. uliginosum.* It is, however, beyond the scope of this handbook to propose any changes in nomenclature without thorough studies.

***Vaccinium ovalifolium* Smith** **Oval-leaved Blueberry**

SYNONYM.—*Vaccinium chamissonis* Bong.

OTHER COMMON NAME.—Oval-leaved bilberry.

DESCRIPTION.—*Plant:* Slender, spreading, deciduous shrub up to 1.5 m. tall with brownish or yellowish, glabrous twigs and greyish old branches. *Leaves:* Rather thin, ovate to elliptic, up to 4 cm. long, obtuse, at both ends, entire, or only slightly serrulate, glabrous on both sides, green above and pale green or glaucous beneath, short-petioled. *Flowers* (appear before the leaves or before the leaves have reached half their mature size): Solitary, 5-merous, in the axils of the leaves on pedicels of about the same length, calyx minutely lobed or merely undulate-margined; corolla subglobose to ovoid, usually broader just below mid-length, pinkish, up to 7 mm. long; style included or on the level of corolla lobes; filaments glabrous, shorter than anthers, awned with terminal pores. *Fruit:* Globose berry up to 10 mm. in diameter, bluish-black or purplish-black, mostly with distinct bloom, edible and of good flavour.

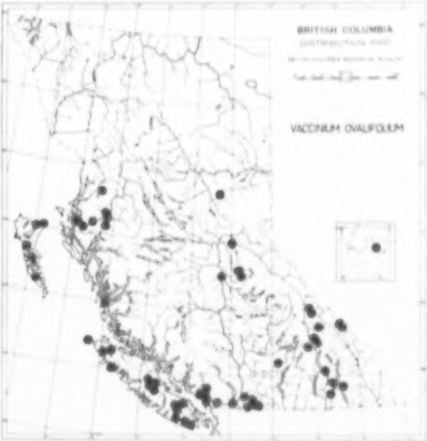

10 cm
a
7 mm
b
2½ mm

Oval-leaved blueberry (*Vaccinium ovalifolium* Smith)—*a*, single flower; *b*, anther.

HABITAT.—Coniferous forests along the Pacific Coast, drier woods in the Interior.

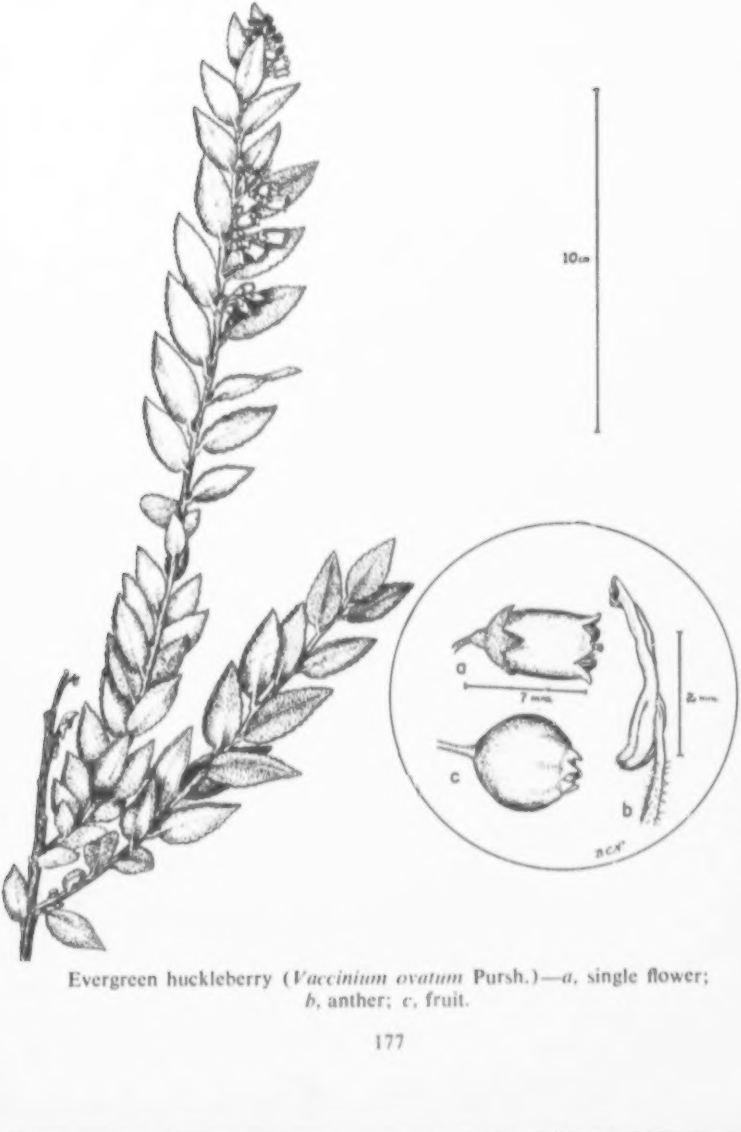
SEASON.—May to July.

RANGE.—Alaska, British Columbia, Washington to Oregon and east to Montana; also widely distributed in eastern United States. East Asia.



DISTRIBUTION IN BRITISH COLUMBIA.—Confined to southern and central part of the Province up to 56° north. Very common on Vancouver Island, the Queen Charlotte Islands, the Coast, and Southeast Interior.

COMMENTS.—Oval-leaved blueberry is rather a common Coastal species of diffusely branched straggling habit, sometimes reaching a considerable height (6 feet or more) in favourable conditions. I have seen some specimens, on the west coast of Vancouver Island, surpassing 10 feet. Oval-leaved blueberry is easily identified and distinguished from other species by its twigs, which are conspicuously grooved, glabrous, and very often reddish, and by its suborbicular to elliptic, thin, glabrous leaves with entire


10cm
a
7 mm
2 mm
c
b
BCN

Evergreen huckleberry (*Vaccinium ovatum* Pursh.)—*a*, single flower; *b*, anther; *c*, fruit.

margins, serrulate only toward the base. The flowers, oval-urceolate in shape, are distinctly pink. The fruit, which grows to considerable size, is perfectly edible, and in our Coastal plants is covered by a typical frosty bloom.

***Vaccinium ovatum* Pursh.** **Evergreen Huckleberry**

SYNONYMS.—*Vaccinium lanceolatum* Dunal, *Metagonia ovata* (Pursh.) Nutt., *Vaccinium ovatum* var. *scoparium* Jeps.

OTHER COMMON NAMES.—Shot huckleberry.

DESCRIPTION.—*Plant:* Erect evergreen shrub up to 3.5 m. high with puberulent young stems. *Leaves:* Very numerous, narrowly-ovate, acute to acuminate, obtuse at the base, leathery, glabrous, dark green and lustrous above, paler green beneath, with thickened and sharply serrulate margin, up to 4 cm. long. *Flowers:* 5-merous, axillary, in small up to 10-flowered clusters; calyx lobes deltoid, red; corolla pinkish, narrowly-campanulate, up to 8 mm. long, with short broadly triangular spreading lobes; stamens included; filaments compressed, pubescent; anthers with long straight tubes above the pollen sacs without awns (sometimes the awns are present in rudimentary form as papillæ and are visible only under magnification). *Fruit:* Globular berries up to 7 mm. broad, shiny black, reddish-brown or glaucous, edible but rather acid.

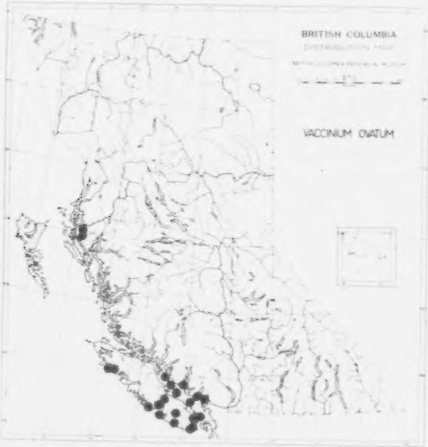
HABITAT.—Soils rich in humus in coniferous forests along the coast.

SEASON.—April to July.

RANGE.—British Columbia, south to California along the Pacific Coast.

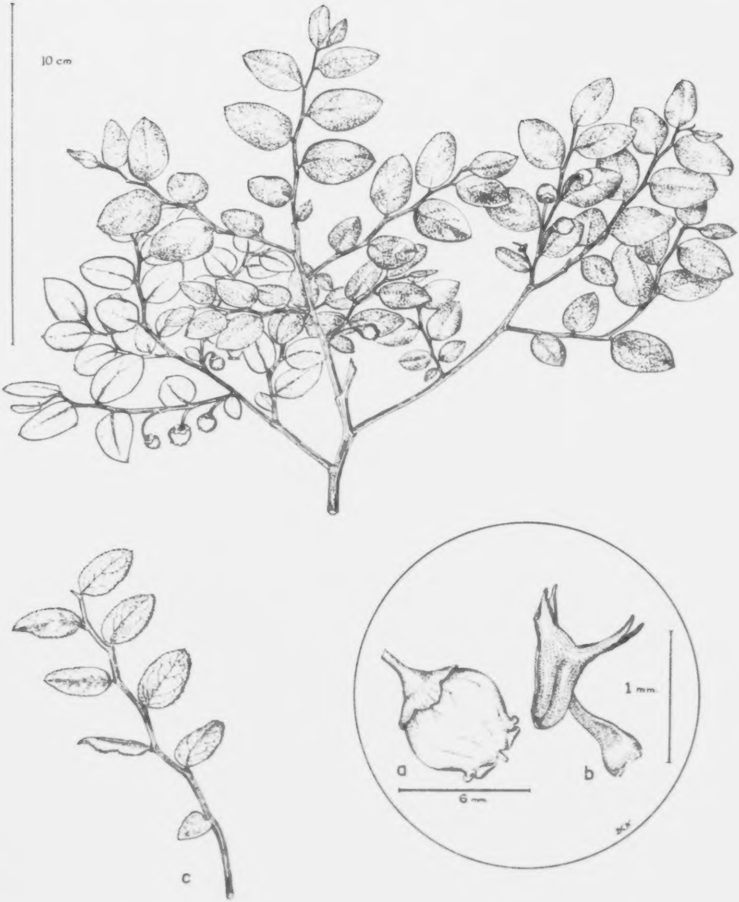
DISTRIBUTION IN BRITISH COLUMBIA.—Typically Coastal and particularly abundant on the west coast of Vancouver Island, the Gulf Islands, and the southern coast on the mainland. Lack of localities on the distribution map does not indicate its rarity or absence, but is due to the relative inaccessibility of some areas.

COMMENTS.—This evergreen species, which is limited in our Province to the Pacific Coast, is very easy to distinguish since it has dark-green leaves with sharply serrulate margins, lustrous above and paler and duller beneath. The flowers, which are in short axillary racemes, are waxy, campanulate in shape, and whitish to pinkish in colour. The fruit occurs in a profusion of shiny black or bluish berries.



Evergreen huckleberry is a very ornamental shrub, suitable for many Coastal gardens. Because of its attractive and long-lasting foliage, it is commonly harvested and used by florists and shipped to Eastern markets. For this reason it is gradually disappearing from its limited range. The fruit was gathered and used by the Indians for food. It is a bit too acid and too small for commercial use, but, as it occurs in profusion, many people along the coast do make use of it.

There is quite a noticeable variation in our material particularly in the colour, shape, and quality of the berries. The glaucous, globular, and better-flavoured form was described as var. *saporosum* Jesp., and it occurs occasionally throughout the range of the species.


10 cm
c
a
6 mm
b
1 mm

Red huckleberry (*Vaccinium parvifolium* Smith)—*a*, single flower; *b*, anther; *c*, juvenile branch.

Vaccinium parvifolium Smith **Red Huckleberry**

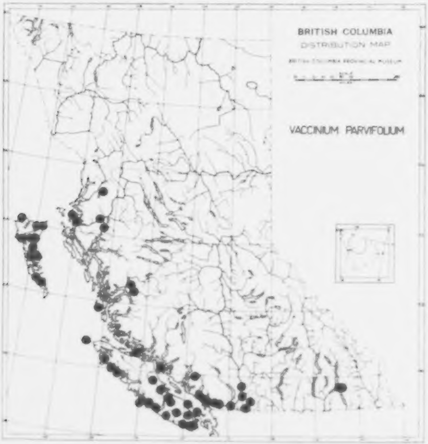
OTHER COMMON NAME.—Red bilberry.

DESCRIPTION.—*Plant:* Erect shrub up to 4 m. tall, with slender green, very prominently angled (almost quadrangular in cross-section), glabrous or minutely puberulent, young branches. *Leaves:* Mature leaves deciduous, thin, entire, oval to oblong-elliptic, obtuse, glabrous or somewhat puberulent beneath and along the midrib above, up to 3 cm. long; juvenile leaves persistent, serrulate, dark green and subcoriaceous. *Flowers:* 5-merous, axillary on short pedicels; calyx lobes distinct, short and broad, with lobes about 1 mm. long; corolla greenish-yellow or pinkish, waxy, broadly campanulate-urceolate, up to 5 mm. long; filaments glabrous, anthers with prominent erect awns and short tubes. *Fruit:* Globose, bright-red berry up to 10 mm. in diameter, edible with rather sour taste and good flavour.

HABITAT.—On raw humus and decaying wood in coniferous forests along the coast.

SEASON.—April to June.

RANGE.—From Alaska to central California, along the coast.



DISTRIBUTION IN BRITISH COLUMBIA.—This species is typically Coastal in its distribution and very abundant within its range. Additional records come from the Southeast Interior in the Kootenay Valley, which points out that there are some ecological similarities between the Coastal area and the Kootenay Valley in the Southeast Interior.

COMMENTS.—This species is characterized by its bright-red berries, solitary axillary flower, and thin light-green deciduous mature leaves and juvenile, persistent, serrated, subcoriaceous leaves. In habit, this species resembles, and might easily be confused with, *V. alaskaense*. (*See* Comments, *V. alaskaense.*)

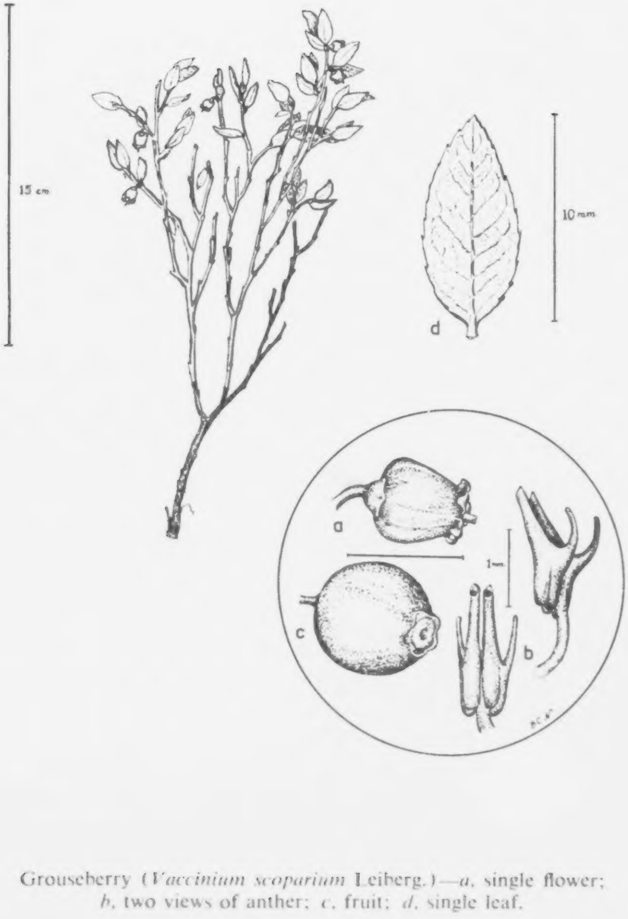
The fruit of the red huckleberry is very palatable, refreshing, and has commercial possibilities. Haskin (1934) writes this about them: "Now since it was known to be bad luck the red huckleberries were not usually eaten. Whenever they were eaten, the reason of that person would probably disappear, and he would attempt to go (wander) into the woods. Therefore they were not eaten because it was known that she (Asin, the monster girl of the woods) was the one that created the red huckleberries. . . . She was held in fear very much because she always carried off people."—*Alsea Myth.*

***Vaccinium scoparium* Leiberg.** **Grouseberry**

SYNONYMS.—*Vaccinium myrtillus* var. *microphyllum* Hook., *Vaccinium microphyllum* (Hook.) Rydb., *Vaccinium erythrococcum* Rydb., *Vaccinium microphyllum* (Hook.) Howell.

OTHER COMMON NAMES.—Dwarf red whortleberry, small-leaved huckleberry, red alpine blueberry.

DESCRIPTION.—*Plant:* A low broom-like shrub up to 25 cm. tall with many, fine, erect, strongly angled, green to yellowish-green, glabrous branches. *Leaves:* Lanceolate to ovate-lanceolate, acute or sometimes acuminate at the apex, cunate to obtuse at the base, thin, glabrous, light green, shiny above dull beneath, and conspicuously veiny, finely serrulate, with prominent midrib, rather small and seldom more than 12 mm. long. *Flowers:* Single, in the axils of leaves on nodding short pedicels; perianth 5-merous; calyx


15 cm
10 mm
d
a
1 mm
c
b

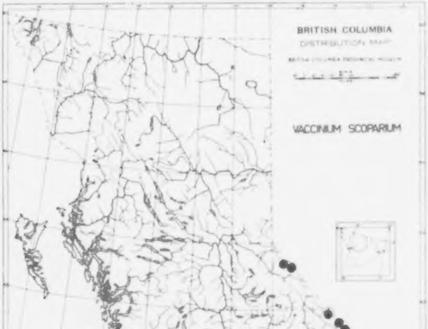
Grouseberry (*Vaccinium scoparium* Leiberg.)—*a*, single flower; *b*, two views of anther; *c*, fruit; *d*, single leaf.

very shallowly lobed, nearly obsolete; corolla campanulate-urceolate, pink, up to 4 mm. long; filaments glabrous; anthers awned, with terminal tubes equal to or longer than pollen sacs. *Fruit:* Globose, bright-red berry, up to 5 mm. in diameter, edible and sweet.

HABITAT.—As an under-shrub in subalpine and alpine elevations.

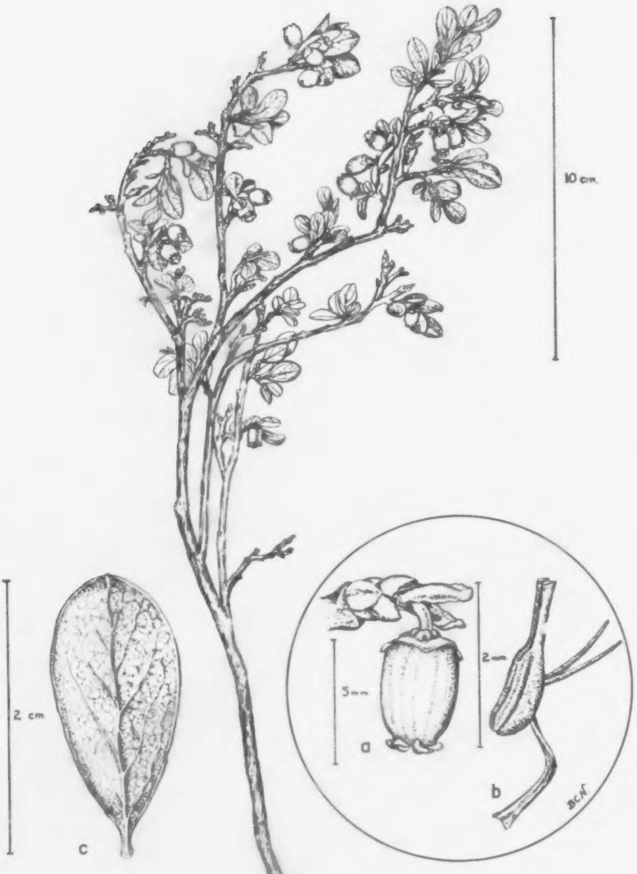
SEASON.—June to July.

RANGE.—British Columbia, Alberta, south to California and east to Colorado and Utah.



DISTRIBUTION IN BRITISH COLUMBIA.—Restricted to Southeast Interior and southern part of Southwest Interior. Rare in Central Interior. Well defined in its distribution.

COMMENTS.—This species is very similar to the low bilberry, *V. myrtillus.* (*See* Comments on *V. myrtillus* dealing with the the separating characters.)


10 cm.
2 cm
c
5 mm
a
2 mm
b

Bog blueberry (*Vaccinium uliginosum* L.)—*a*, single flower; *b*, anther; *c*, single leaf.

Vaccinium uliginosum L. **Bog Blueberry**

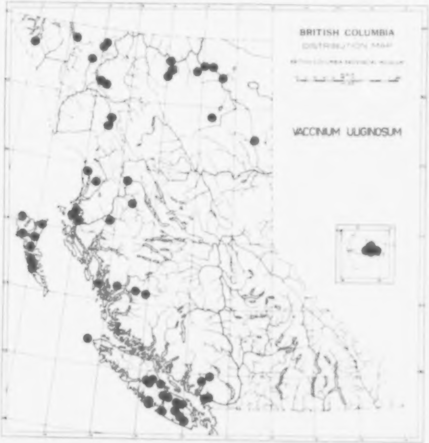
Other Common Names.—Bog bilberry, bog huckleberry, whortleberry.

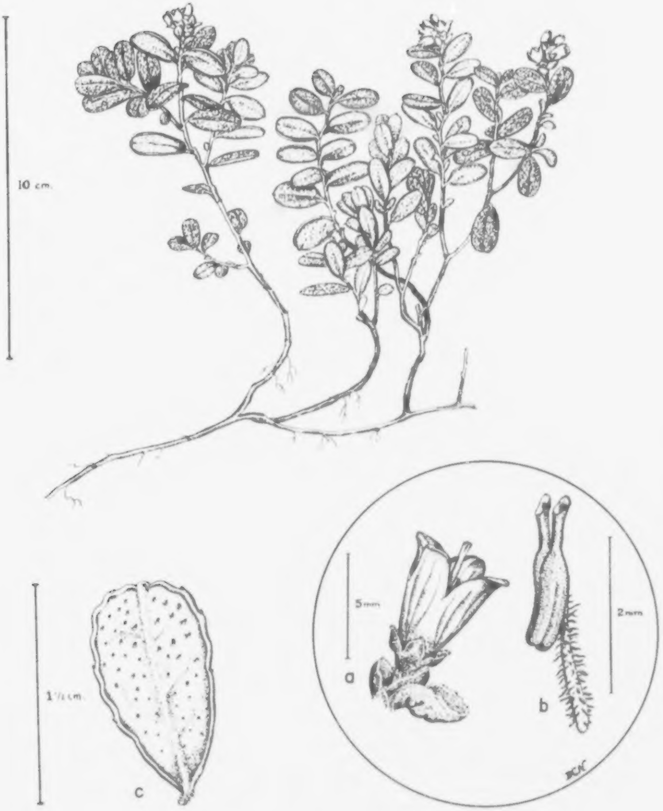
Description.—*Plant:* Rather low, up to 50 cm. tall, much branched, and often spreading deciduous shrub with old branches greyish-red and young ones yellowish-green, finely puberulent. *Leaves:* Firm and thick at maturity, entire, oblanceolate to obovate, obtuse or sometimes retuse, from less than half as broad to nearly equally wide, length variable from 1.0 to 3 cm. long, strongly reticulate-veiny, green above, pale or glaucescent beneath, glabrous. *Flowers:* From scaly bud, solitary or 2–4 per axil, in a cluster up to 6 mm. long; calyx deeply 4–5-lobed, persistent on the mature fruit; corolla pink, ovoid-urceolate 4–5-lobed, the lobes reflexed in anthesis; anthers awned, prolonged into a long tube. *Fruit:* Globular berry about 6–8 mm. in diameter, blue to black with a bloom, edible and sweet.

Habitat.—Sphagnum peat bogs and wet muskeggy areas.

Season.—May to July.

Range.—Alaska, British Columbia to California, east across the continent to the Atlantic Coast. Eurasia.




10 cm.
1½ cm.
c
5 mm
a
2 mm
b

Mountain cranberry (*Vaccinium vitis-idea* subsp. *minus* (Lodd.) Hult.)—*a,* single flower; *b,* anther; *c,* single leaf.

DISTRIBUTION IN BRITISH COLUMBIA.—Abundant on the Coast and Northern Interior; scattered in the Northeast; rare in Central Interior; particularly common in Haines Cut-off and the Queen Charlotte Islands.

COMMENTS.—This is a very variable species in which several varieties have been described. One of these, var. *alpinum* Bigel, occurs quite frequently in our Province. It is characterized by smaller leaves and awns longer than the anther sacs. It appears, however, to be only a dwarf form of the species, and its distribution is confined to higher altitudes. The majority of our specimens are of coarser form and can best be referred to as the typical form var. *uliginosum*, with slightly larger, more petioled leaves and the awns shorter than the anthers. They simulate, more closely, the European type. Intergrades between var. *alpinum* and the typical form, var. *uliginosum*, are quite common, and according to the present author there is no distinct line between the two races, as the intermediate forms can only be separated on the basis of cytological studies. Var. *alpinum* is diploid and var. *uliginosum*, tetraploid.

***Vaccinium vitis-idæa* L. subsp. *minus* (Lodd.) Hult.**

Mountain Cranberry

SYNONYMS.—*Vaccinium vitis-idæa* L. (in part), *Vaccinium vitis-idæa punctata* Moench., *Vaccinium vitis-idæa* L. var. *minus* Lodd., *Vaccinium vitis-idæa vitis-idæa* (L.) Britton.

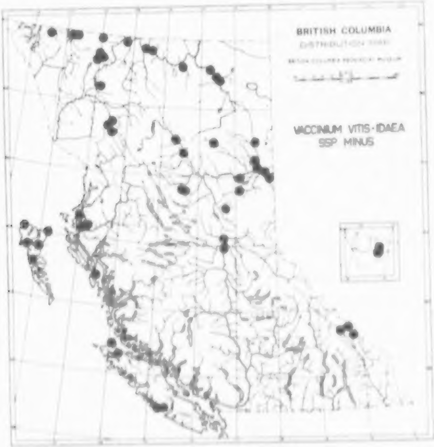
OTHER COMMON NAMES.—Rock cranberry, bog cranberry, cow-berry, lingen berry.

DESCRIPTION.—*Plant:* Low, evergreen, mat-forming sub-shrub up to 20 cm. tall with tufted, puberulent to pubescent branches. *Leaves:* Coriaceous, subsessile, narrowly elliptic to obovate, up to 15 mm. long, rounded at the apex, revolute, shining above, pale beneath, and dotted with brown to black stalked glands. *Flowers:* Few, in short terminal clusters, each on short glandular pedicels; calyx deeply 4-lobed; corolla pinkish, open campanulate, about 5 mm. long, 4-cleft to the middle; stamens 8; filaments short; anthers without awns, prolonged into a long tube. *Fruit:* Bright-red berry up to 10 mm. in diameter, edible but rather acid, much better when cooked.

Habitat.—Dry bogs, rocky barrens, coniferous woods.

Season.—June to August.

Range.—Alaska to British Columbia and across the continent to Greenland. Eurasia.



Distribution in British Columbia.—Widely scattered along the Coast; common in the Northern Interior and Northeast; rare or absent elsewhere, as indicated on the distribution map.

Comments.—Mountain cranberry is one of the easiest of the genus *Vaccinium* to identify; it cannot be confused with others as it is a low prostrate shrub with tufted branches and evergreen coriaceous leaves, lustrous above and pale and dark-spotted beneath. These spots are due to the presence of dark-brown to black stalked glands, clearly visible under magnification. The dark-red, rather acid or tart berries are edible when cooked and widely used, especially in Europe, as a preserve. The taste may be improved by adding sugar to make jellies or sauces as a substitute for cranberries. They are used to some extent in Eastern Canada, in Nova Scotia, New Brunswick, and Quebec. In the Scandinavian countries the berries are gathered in large quantities, placed in barrels filled with water, and shipped to world markets, where they are put to use as a substitute for cranberries.

Hulten (1948) considers the material from Alaska and the Yukon belongs to subsp. *minus*, differing from the European main type in its smaller size, much smaller leaves, with the lateral nerves of the upper side indistinct, the style of about the same length as the corolla and of darker-red, juicier, and sweeter berries. Alaskan and Yukon plants do not differ essentially from the British Columbia material, previously described as var. *minus*. Hulten suggests giving it the rank of subspecies on the basis of its geographically disjunct occurrence from the European species, a suggestion that is followed in this handbook.

SPECIES EXCLUDED AND NOT DISCUSSED IN THE TEXT

Pleuricospora fimbriolata Gray, included by J. W. Eastham in his 1947 *Supplement to the Flora of Southern British Columbia*, by J. K. Henry, was based on a specimen collected at Beaufort Range, above Horn Lake on Vancouver Island, by W. R. Carter (1916), and was erroneously identified. After re-examination of the specimen, it has been identified as *Hemitomes congestum* A. Gray. No other records of this species are known from the Province.

Calluna vulgaris (L.) Hull. Scotch heather. As reported by Eastham (1947), this commonly cultivated species is apparently well established and spreading on peaty ground on Lulu Island, Vancouver, and in a few other localities as discussed in the Introduction.

GLOSSARY

Two standard works have been freely consulted in connection with this glossary: *Taxonomy of Flowering Plants*, by C. L. Porter, University of Wyoming, Freeman & Co., San Francisco, and *A Glossary of Botanic Terms*, by D. B. Jackson, Hafner Publishing Co., fourth edition.

Acidity—the condition characterized by the presence of acid substances.

Acidophilous (acidotrophic)—feeding on acid foods.
Acuminate—tapering at the end.
Acute—ending in a point.
Adnate (dissimilar parts)—grown together.
Alternate—not opposite to each other.
Anther—the part of a stamen containing the pollen.
Anthesis—the time of expansion of a flower.
*Apex (*pl. *apices)*—the tip of an organ.
Apical—situated at the apex or tip.
Apiculate—with a short and abrupt point.
Appendage—a part added to another.
Appressed—lying close and flat against.
Ascending—growing obliquely upward, or upcurved.
Attenuate—slenderly tapering; becoming very narrow.
Auricle—an ear-shaped appendage.
Auriculate—with a basal lobule; furnished with auricles.
Autophytic—with chlorophyll and therefore independent, as opposed to saprophytic or parasitic.
Awn—a slender bristle-like organ.
Axil—the upper angle formed by a leaf or branch with the stem.
Axillary—borne at or pertaining to an axil.
Axis—the main or central line of development of any plant or organ.
Berry—pulpy, indehiscent, few- or many-seeded fruit.
Bi—a prefix, meaning two or twice.
Blade—the flat expanded part of a leaf.
Bloom—the white waxy or pruinose covering on fruits and leaves.
Boreal—northern.
Bracted (-eate)—having bracts.
Bractlets—a secondary bract, borne on a pedicel, or immediately beneath a flower; sometimes applied to minute bracts.
Bristle—a stiff hair or any similar outgrowth.
Calyx—the outer of two series of floral leaves.
Campanulate—bell-shaped.
Capitate—shaped like a head; collected into a head or dense cluster.
Capsule—a dry dehiscent fruit composed of more than one carpel.

Carpel—the modified leaf forming the ovary, or a part of a compound ovary.

Cauline—borne on a stem.

Cm. (centimetre)—a measure of length equal to 0.393 inch (2.54 cm.=1 inch); 1 cm.=10 millimetres.

Chlorophyll—green colouring-matter of plants.

Ciliate—fringed with hairs; bearing hairs on the margin.

Circumboreal—in boreal regions around the world.

Clasping—partly or wholly surrounding stem.

Clavate—club-shaped.

Claw—the narrow or stalk-like base of some petals.

Coherent—having similar parts united.

Concave—shallowly hollowed; saucer-like.

Conical—cone-shaped.

Connate—united similar parts, as leaves or anthers.

Connivent—coming into contact; converging.

Constricted—drawn together, contracted.

Convex—having a more or less rounded surface.

Cordate—heart-shaped with the point upward.

Coriaceous—leathery.

Corolla—the inner of two series of floral leaves; petals considered collectively.

Corymbs—a convex or flat-topped flower-cluster of the racemose type, with pedicels or rays arising from a different point on the axis.

Crenate—with rounded teeth.

Crenulate—crenate, but the toothing themselves small.

Cuneate—wedge-shaped; triangular, with the acute angle downward; applied to leaf bases and the base of floral segments.

Cuspidate—tipped with a sharp rigid point.

Deciduous—falling away at the close of the growing period.

Dm. (decimetre)—a measure of length equal to 3.93 inches or 10 centimetres.

Decumbent—reclining, but with the summit ascending.

Deflexed—turned abruptly downward.

Dehiscent—opening to emit the contents.

Deltoid—broadly triangular.

Dentate—toothed, especially with outwardly projecting teeth.
Denticulate—the diminutive of " dentate "; with small teeth.
Di—as a prefix in compounds, means two or twice.
Diffuse—with many loose or open branches.
Dilated—expanding into a blade, as though flattened.
Dorsal—back; relating to the back or outer surface of a part of an organ, as the lower side of a leaf; the opposite of ventral.
Drupe—a stone fruit.
Ecology—the study of living things in relation to their environment.
Ellipsoid—a solid with an elliptic shape.
Elliptic—with the outline of an ellipse; usually narrowly ovate.
Endemic—native to a given region, a country or an island.
Entire—without divisions, lobes, or teeth.
Erect—upright, perpendicular to the ground or its attachment.
Erose—as if gnawed; having a ragged edge.
Exfoliating—scaling off or shedding in plates, as the bark of some trees.
Exserted—projecting beyond a common point.
Family (of plant)—a group of related genera.
Filament—the stalk of an anther.
Filiform—thread-like; long and very slender.
Fimbriate—fringed.
Foliaceous—leaf-like in texture or appearance.
Funnelform—expanding gradually upwards, like a funnel.
Gamopetalous—with a corolla of one piece, the petals united at least at the base.
Genus—the smallest natural group containing distinct species.
Glabrate—becoming glabrous with age, or almost glabrous.
Glabrous—devoid of hairs; smooth.
Glandular—with glands.
Glaucescent—slightly glaucous.
Glaucous—covered with a bloom, as a plum or cabbage-leaf.
Globose—spherical or nearly so.
Granuliferous—granule bearing.
Habit—general appearance of a plant.
Habitat—the type of locality in which a plant grows, as woods, fields, etc.

Herb—a plant with no persistent woody stem above ground.

Hirsute—with rather coarse stiff hairs.

Humus—decomposing organic matter in the soil.

Hyaline—thin and translucent.

Hybrid—a cross between two species.

Imbricate—overlapping either vertically or spirally.

Indigenous—native to a country or region, not introduced.

Inferior (ovary)—one that seemingly is below the calyx leaves.

Inflorescence—the flowering part of plants; its mode of arrangement.

Keel—a projecting ridge on a surface, like the keel of a boat.

Lacerate—with an irregular or ragged margin, as though torn.

Lanceolate—considerably longer than broad, tapering upward from the middle or below; lance-shaped.

Lateral—fixed on or near the side of an organ.

Lepidote—surface with small scurfy scales.

Ligulate—tongue-shaped.

Linear—long and narrow, with parallel margins.

Locule—a cavity within an ovary.

Marginate—furnished with a margin of distinct character.

Membranaceous—thin and semi-transparent.

-merous—in composition, having parts, as 2-merous, having two parts of each kind.

m. (metre)—a measure of length equal to 39.37 inches.

mm. (millimetre)—a measure of length equal to 0.039 inch.

Monotypic—having only one exponent, as a genus with but one species.

Muskeg—a moss bog, common in boreal regions.

Mycorhiza (mycorrhiza)—a fungus-root association.

Nervose—prominently nerved.

Node—the place upon a stem which normally bears a leaf or whorl of leaves.

Nut—a simple, dry, indehiscent fruit with a bony shell, characteristically derived from a compound pistil, but 1-seeded by abortion.

Nutlet—a small nut.

Ob—a prefix, meaning inversely or oppositely, as in obovate.

Oblanceolate—lanceolate, with the broadest part toward the apex.

Oblong—longer than broad, with the sides nearly parallel or somewhat curving.

Obovate—the reverse of ovate, the terminal half broader than the basal.

Obtuse—blunt, rounded.

Orbicular—circular.

Ovary—the part of the pistil that contains the ovules (young seeds).

Ovate—shaped like the outline of an egg, with the broader end downward.

Panicle—a loosely arranged compound inflorescence with pedicellate flowers.

Paniculate—resembling a panicle.

Papillæ—soft superficial glands or protuberances.

Pedicel—the stalk of a single flower in a flower-cluster.

Peduncle—the stalk of an inflorescence.

Peltate—shield-shaped; a flat organ, with a stalk on its lower surface.

Perennial—lasting from year to year.

Perianth—the floral envelope, consisting of the calyx (sepals) and corolla (petals), whatever their form.

Petal—one of the divisions of the corolla.

Petaloid—petal-like; in colour and shape resembling a petal.

Petiolate—having a petiole.

Petiole—the leaf-stalk.

Photosynthesis—the formation of carbohydrates, in constructive metabolism, from water and the carbon dioxide of the air in the chlorophyll-containing tissues of plants exposed to light.

Pilose—hairy; with soft hairs.

Pistil—the central organ of a flower containing the macrosporanges (ovules).

Pollen—spores or grains borne by the anther, containing the male element (gametophyte).

Polymorphic—having more than one form.

Polyploid—a plant with a chromosome complement of more than 2 sets of the monoploid number.

Prostrate—lying flat upon the ground.

Pseudo (in combinations)—falsely.

Puberulent—finely pubescent.

Pubescent—covered with hairs.

Pyriform—pear-shaped.

Raceme—an elongated indeterminate flower-cluster with each flower pedicelled.

Racemose—in racemes, or resembling a raceme.

Rachis—the axis of a compound leaf, or of a spike or raceme.

Reflexed—bent backward abruptly.

Remote—scattered; not close together.

Resinous—containing or producing resin.

Reticulate—netted.

Retuse—with a shallow notch at a rounded apex.

Revolute—rolled backward from the margins or apex.

Rhizome—underground stem; root-stock; distinguished from a root by presence of nodes, buds, or scale-like leaves.

Rosulate—in rosettes.

Rotate (corolla)—wheel-shaped; flat and circular in outline.

Rudimentary—imperfectly developed, or in an early stage of development.

Rugose—wrinkled.

Rugulose—somewhat wrinkled.

Saprophyte—a plant (usually lacking chlorophyll) living on dead organic matter.

Scape—a peduncle rising from the ground, naked or without proper foliage.

Scapose—bearing or resembling a scape.

Scarious—applied to leaf-like parts or bracts that are not green, but thin, dry, and membranaceous, often more or less translucent.

Secund—turned to one side.

Segment—a part of the perianth, as the petal, sepal, or lip; any division or part of a cleft or divided organ.

Sepal—one of the modified leaves of a calyx.

Septicidal (capsule)—splitting along the septæ or partitions.

Serrate—having teeth pointing forward.

Serrulate—finely serrate.

Sessile—not stalked; sitting.

Sheath—any long or tubular structure surrounding an organ or part.

Spatulate—shaped like a spatula; spoon-shaped.

Species—the aggregate of all those individuals which have the same constant and distinctive characters.

Sphagum—moss.

Spicate—spike-like.

Spike—an elongate flower-cluster, with sessile or nearly sessile flowers.

Stamen—one of the pollen-bearing organs of the flower.

Stigma—the part of the pistil that receives the pollen.

Stolon—a basal branch rooting at the nodes; horizontal stem at or below the surface of the ground that gives rise to a new plant.

Stoloniferous—producing or bearing stolons.

Striate—marked with fine longitudinal lines of colour or ridges.

Style—the narrowed portion of the pistil which connects the ovary and the stigma.

Sub—a prefix, denoting an approach to the condition designated, as " subacute," meaning somewhat acute.

Subulate—awl-shaped, tapering from base to apex.

Superior (ovary)—free from the calyx or hypanthium.

Tapering—regularly diminishing in diameter.

Taxon (taxa)—a general term applied to any taxonomic element, population, or group irrespective of its classification level.

Terete—cylindrical.

Tomentose—with tomentum; densely woolly or pubescent; with matted soft wool-like hairiness.

Translucent—transparent to light.

Tri—a prefix, meaning three.

Truncate—ending abruptly, as if cut off transversely.

Tubercle—a small swollen structure usually different in colour from the part to which it is attached, and often with a hardened texture.

Urceolate—urn-shaped; descriptive of a corolla of united petals having a bulbous tube, a narrowed neck, a very small limb.

Variety—a plant having minor characters or variations which separate it from the type species.

Vein—a thread of fibro-vascular tissue in a leaf or other organ.

Venose—having veins.

Ventral—front; relating to the inner face or part of an organ; opposite the back or dorsal part.

Versatile—an anther attached at or near its middle to the filament.

Villous—bearing long and soft hairs.

Viscid—glutinous; sticky.

Whorl—a group of three or more similar organs, radiating from a node. Verticil.

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